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AMERICAN Journal of Public Health

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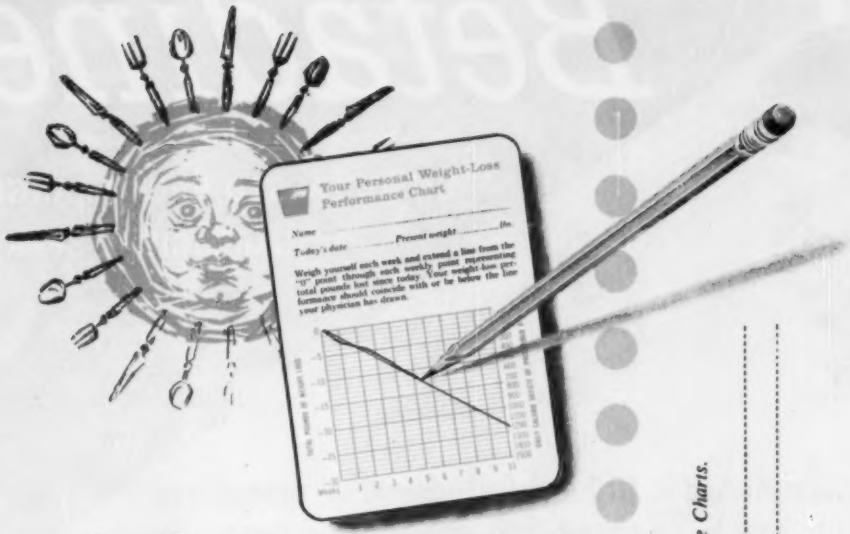
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1. Garnes, A. L.; Davidson, E.; Taylor, L. E.; Felix, A. J.; Shidlovsky, B. A., and Prigot, A.: Clinical Evaluation of Povidone-Iodine Aerosol Spray in Surgical Practice, Am. J. Surg., 97:49 1959.

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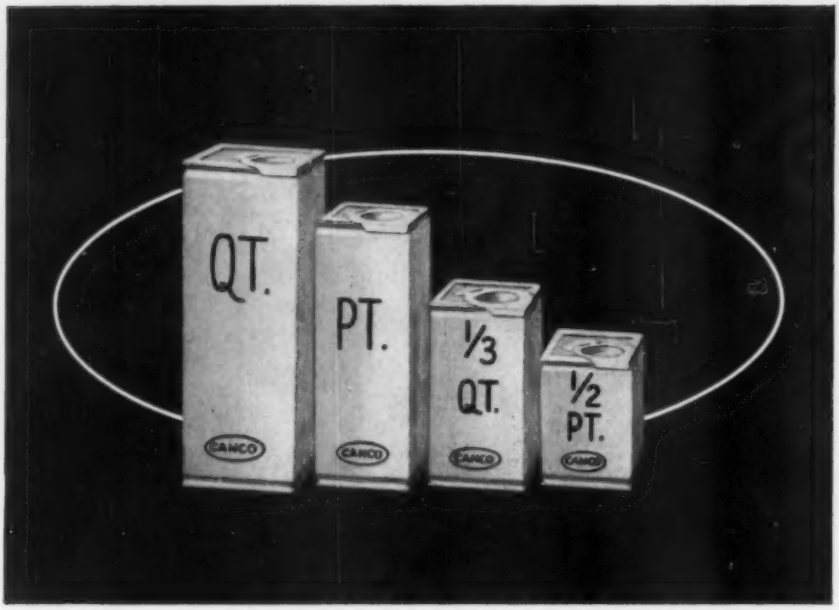

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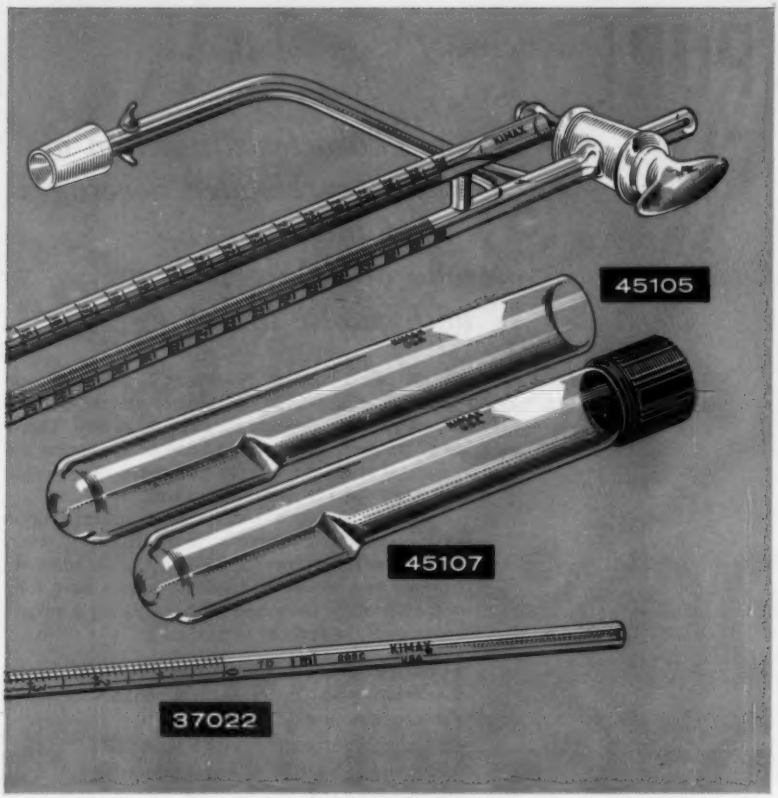

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[1]McClellan, Walter S. "The Utilization of Ingested Carbon Dioxide, A Review" 1955.

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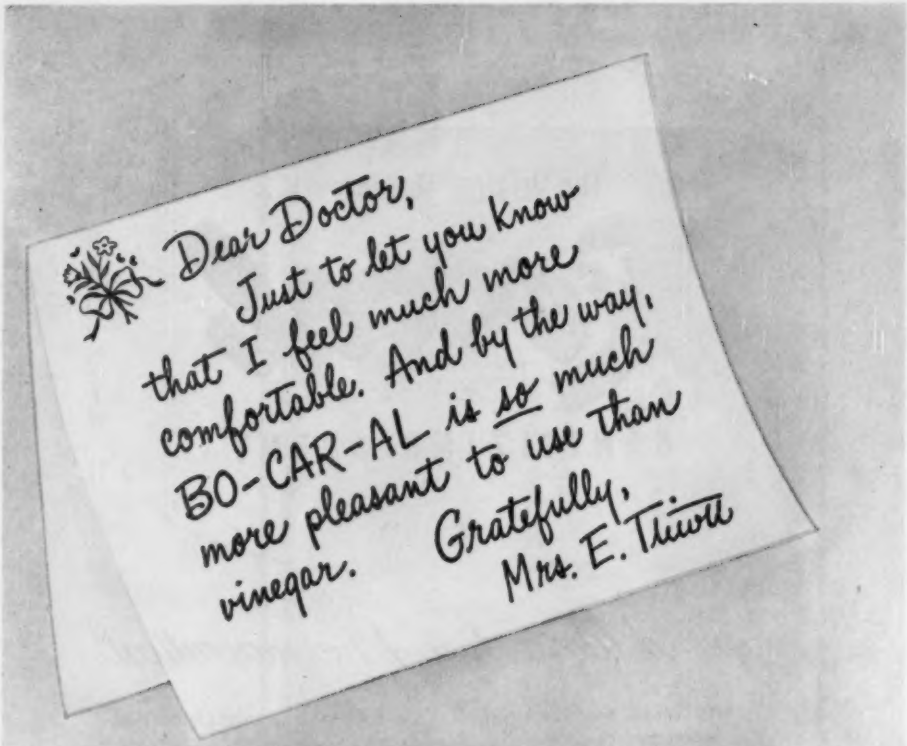

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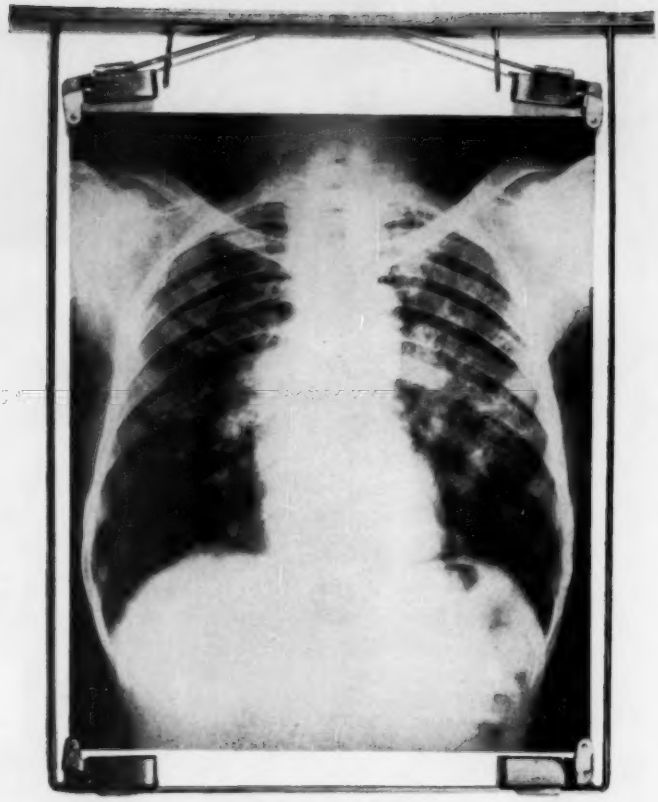

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References: 1. McLean, R. L., and Benson, W. P.: Tr. 15th Conference on Chemotherapy of Tuberculosis, 1956, p. 122. 2. Murdoch, J. M., and Stewart, S. M.: Brit. J. Tuberc. 50:85 (Jan.) 1956.

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1. Proceedings National Conference-Hospital-Acquired Staphylococcal Disease, September, 1958, pages 3-10.

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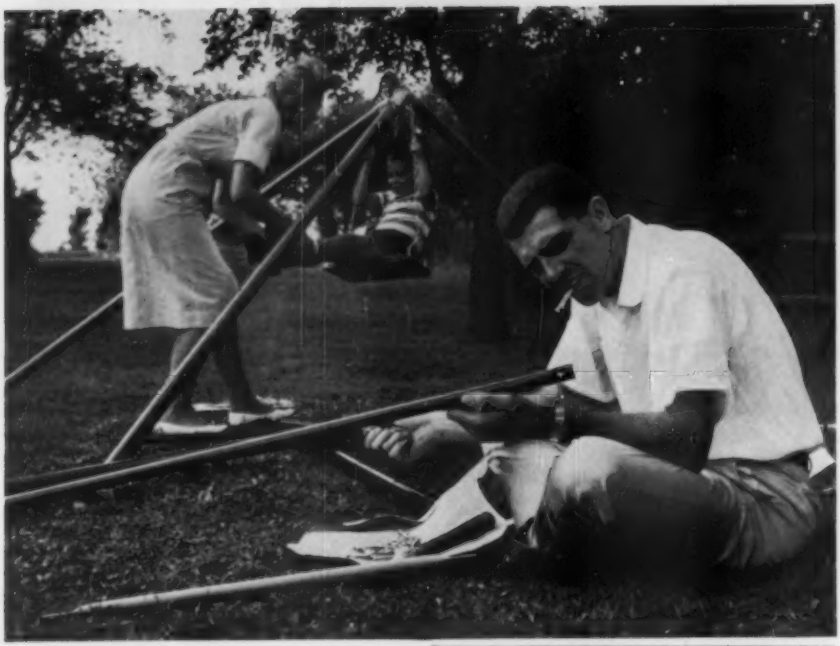

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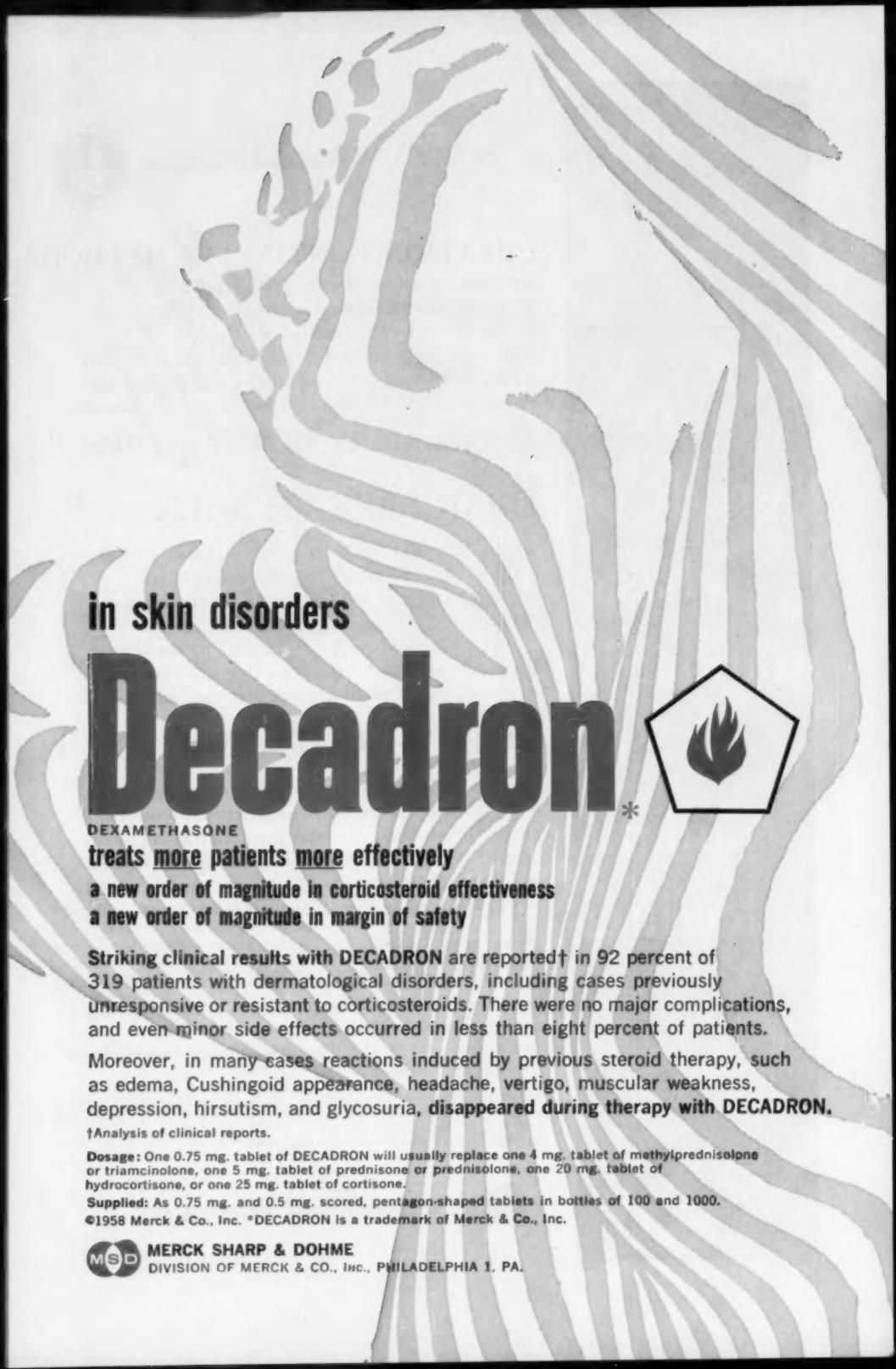

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References: 1. Fomon, S. J., and May, C. D.: Pediatrics *22*:101 (July) 1958. 2. Fomon, S. J.; Thomas, L. N., and May, C. D.: Pediatrics *22*:935 (Nov.) 1958. 3. May, C. D.: Pediatrics *23*:384 (Feb.) 1959. 4. Fomon, S. J., and May, C. D.: Pediatrics *22*:1134 (Dec.) 1958.

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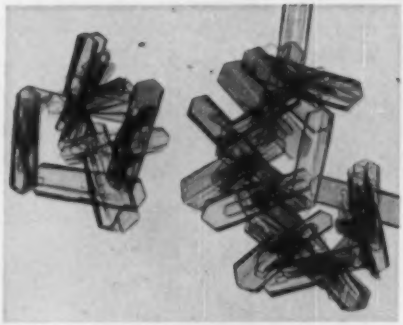

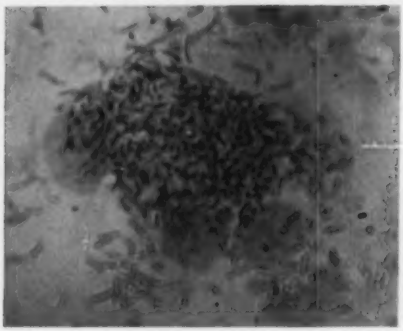

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Journal of Public Health

Basically, this paper is about the interrelatedness of things. Health and welfare cannot be considered apart from each other. Nor can education and economics be seen in isolation. And this is true of research and application. Much has been said about planning, coordination, and the like; but few have seen these problems and dealt with them as the author of this paper.

SOME FACTORS IN THE CLOSER COORDINATION OF HEALTH AND WELFARE SERVICES

Katherine Brownell Oettinger

HUMAN PROGRESS has always come in waves, and for the last quarter of a century we have been on the crest of a wave of scientific advancement which gives no sign of ebbing. Some of mankind's most stubborn killers and cripplers are being conquered by new medical discoveries. But no matter how dramatic, no discovery, no miracle of medicine can stand alone. Witness the Salk vaccine. We have in our hands the means of controlling poliomyelitis, but we are not making the most of it. Only about one in four people in the United States has been immunized against this disease.

Another facet of the same problem is how to make available dramatic discoveries such as those in heart surgery. New hope for life is exciting to us, and even more so to the parents of children with heart defects. But the cost of diagnosis, surgery, and aftercare is absolutely prohibitive for many parents who could take in stride a simple operation or illness. The very fact that new knowledge and skills exist has created a new category of medical indigency.

Some old concepts need reexamination when we face the alternatives of possible cure for some $3,000 against certain invalidism costing untold thousands or even death. Under such circumstances what is sound economy?

We have learned that after a medical discovery comes the need for a network of services to spread the benefits of that discovery. When economic barriers obstruct securing these services, we must find out how they can be overcome. We

have the technical knowledge to do much more than we are doing. We have the gross national product for adequate voluntary or public support. How do we want to spend it?

But even with the most efficient and universal services, the fundamental problem of motivating people to take full advantage of them remains. How can we in health and welfare, and all the other helping professions, motivate people to use these services? How can we discover ways of buttressing the findings of research so that their ultimate purpose is fully accomplished?

And if what we do spend is to reach its intended beneficiaries most effectively, careful joint planning starting at the highest echelons of administrative authority is essential. Certainly, the principle that inadequate welfare services create health problems, and vice versa, has been amply demonstrated. And we all live with the concept of prevention. It is, therefore, deeply frustrating to both fields when for lack of a "nail" the battle or war is lost. So our search for ways of driving the nails of coordination is an honest and, at times, almost a desperate effort.

Even though each level—local, state, national—has its own indispensable role in the total structure of services, responsibility for leadership begins at the top. Out of their conviction about this responsibility, Dr. Leroy E. Burney, Surgeon General of the Public Health Service, and Charles I. Schottland, Commissioner of Social Security, joined in issuing a letter on June 26, 1958, to the state and territorial health officers and the state public welfare directors, calling for joint action which "can be mutually beneficial to the responsible agencies and result in improved services to the public."

Several states have for some time been making notable gains in the procedures for, and the results of, serious joint planning in health and welfare. For example, in California a Governor's Committee on Children and Youth has functioned in its present structure for about twelve years. It includes top-level representatives from nine state agencies—State Departments of Health, Welfare, Mental Hygiene, Employment, Industrial Relations, Education, Recreation, the Youth Authority, and the Attorney General's Office—and about 30 leading citizens, representatives of voluntary agencies and all three major religious groups. Since the people on the committee represent high-level administrative authority, their recommendations carry great weight in the state. In addition, as committee members they have worked together long enough to know and respect each other; their parent organizations are now much more intertwined than formerly. Committee members serve as consultants for each other's special projects; they support each other's legislation; and they are carving out an integrated program of services for that state which is imaginative, progressive, and more complete than any of them could have accomplished alone.

New York also has a joint planning committee which has ironed out many of the problems in the coordination of health and welfare efforts around a broad but specific charge. This is the Governor's Interdepartmental Committee on Low Income Families. Its efforts are addressed largely to rural families because of the reduced scope of community resources in rural areas and the resultant problem of how to meet their needs.

Connecticut gives us another example of coordinated planning and action on a special project. The director of the Bureau of Maternal and Child Hygiene of the Connecticut State Health Department initiated the project by asking the State Medical Society to consider a program of medical and social care for unmarried mothers. After a careful survey, a two-year demonstration project was developed for services and fact-finding, fi-

nanced with maternal and child health funds, to help unmarried mothers obtain coordinated medical and social services, including payment of medical expenses when necessary.

The result, through this joint effort of several agencies, has been a distinct improvement in services to unmarried mothers and their babies, mainly because of closer worker relationships between health and welfare facilities.

These are brief examples of ways in which states are working to build an over-all program. They are excellent beginnings and certainly show movement in the right direction. Eventually, piece by piece, we may be able to complete a mosaic of services. Perhaps we could speed up the process in some instances and achieve better service for more people, if plans could be more sweeping. Priorities might be assessed with more validity if all programs could be examined in the light of all needs. But perhaps "piece by piece" was the only way to get started.

In any case, we know that whatever planning is done at the state level must be implemented throughout each agency and have its roots in the soil of local realities. Sometimes the best way to get a clear impression of the situations that call for administrative planning is to look critically at actual cases where neither health nor welfare needs are being met successfully.

To illustrate, a case came to my attention recently where a conscientious and able public health nurse was largely dissipating her efforts for a family because the social problems were so serious. Both Mr. and Mrs. Doe had health problems which could have been minimized by the things that money would buy.

A grandfather had moved into the home after having a stroke, bringing with him all kinds of expensive needs. About the same time Mr. Doe lost his job at the lumber mill. The five children were all thin, listless, and in need of tonsillectomies. They eventually had them, but without the kind of help to the family in planning that would have permitted them to preserve their dignity and self-respect.

Hospital bills piled up, the nutrition problems were aggravated, basic needs went unmet, and the family lost all sense of being "worthy citizens."

The nurse, who was a sensitive person, keenly aware of the needs in this family, gave what moral support she could (probably often at the expense of time needed by other patients). Despite her best efforts, she had the frustrating experience of seeing a family breaking down, with both health and welfare needs growing more acute as they fed on each other.

Even from this brief sketch, perhaps we can single out a few of the principles involved. First, if all essential services are not available, those that are provided may be largely wasted.

Because the nurse did not have administrative protection in holding to the limits of her own appropriate function (however, much we may sympathize with her warm response to this family's needs), her time and skills were probably not being used to the maximum in areas where she did have special competence.

Because the welfare worker's responsibilities and limitations were not clearly defined and understood by all concerned, the family was damaged.

Because no firm procedure had been worked out regarding medical and hospital care for the medically indigent, the family's dignity was severely injured and several unnecessary interagency problems developed.

In the case of the Doe family we had several agencies involved: the State Departments of Health and Welfare, the local officials of both county and private hospitals, and of county welfare. Although the same principles apply at all

levels, problems on a smaller scale are sometimes easier to see. Here we might wonder why the county government would quibble (to the family's detriment) over whether they paid administrative expenses for the hospital out of one budget or cost-of-care expenses for the patient out of another budget, when both were coming from the same county general fund. The hidden costs of not providing services to buttress the ones they did have, or to prevent the development of much greater problems in a family, seem to have escaped notice entirely. And when I say "they" I am reminded of Christopher Robin's delightful confusion about "who is what and what is who."

Although joint consideration of problems must go on between agencies in matters of structure and administration, this must also occur between the professional disciplines. Sharing of knowledge and information through such media as case conferences and interprofessional meetings frequently leads to the development or expansion of services that cut across a whole group of agencies.

Thousands of these conferences over the country have had great influence in the development of our best thinking around specialized services, particularly in such matters as adoption and homemaker service.

Our concept of how homemakers can be used is broadening beyond the original idea of temporary placement of the supervised homemaker during family crises of illness and emergency. All the disciplines in both health and welfare have an interest in developing this service and close cooperation in planning for and using such an ancillary resource presents both an opportunity and a necessity.

This is true also for adoption. The concept of providing new parental ties for children who have lost their own parents has undergone a succession of cultural changes. At one time, the only purpose in adoption was to provide a family with means of perpetuating its name and the only concern was to protect the adopter. Now, especially in this country, our legislation and social concern are directed primarily to the welfare of the child. Protection of the legal and social rights of natural and adoptive parents is implicit if these rights are properly regarded for the child.

The legal, medical, and social work professions have all contributed to our present philosophy and understanding of good practice. Gradually the responsibility and special role of each of the professions most intimately concerned begins to become clear and to be accepted. The Children's Bureau has sponsored a series of meetings for doctors, lawyers, and social workers to define their roles in relation to the total process of care and planning for the unmarried mother, the baby, and the adoptive parents.

One of the major problems in the implementation of our knowledge about adoption and services to the unmarried mother has been an insufficiency of resources. Many hazardous independent and so-called "black-market" placements would be avoided if enough well managed and coordinated services were available for medical and social care for the unmarried mother and her baby, and for prompt, skilled services to adoptive applicants.

Adoption has become so popular and so many couples want the safeguards of agency placements that new resources are developing in many places—and many disciplines and agencies are working together to bring them about. For example, institutions are adding caseworkers whose professional education is paid for by sponsoring church groups in order that they may have foster home and adoption services as a part of their programs. Citizen boards are taking a great deal of responsibility in this area.

In taking action on the frustrating

problem of how to secure qualified staff, citizen boards are furthering an active and meaningful partnership with professional staff, but the leadership has come mostly from professional groups.

In the crescendo of activity around mental retardation, leadership has been the other way around. Isolated studies and pockets of interest in the retarded child have existed for years, but most of the professions had rejected mental retardation as an area for special effort. In what seemed to be an almost overnight mushrooming, organized groups of parents of retarded children developed in almost every state. Moreover, they were instrumental in obtaining a federal appropriation for services to the mentally retarded. Our salute to these mothers and fathers!

In the appropriation for maternal and child health services administered by the Children's Bureau a million dollars was earmarked by Congress for services to retarded children. A monumental job has been done primarily by public health agencies in setting up 40 new projects in two years. Social agencies have a contribution to make to the retarded child, too. Often the child and his family need such auxiliary services as temporary foster care, casework help with anxieties and frustrations, and agency help with their practical problems. Social workers and educators are eager to participate in workshops on mental retardation and to be a part of broad interagency planning. With two years of experience behind us, perhaps now we are in a position to take stock and see how all the resources of state and local communities can be brought to bear in order to make our services to the mentally retarded the very best we have to give.

Also in the mental retardation province we have had the problem of conflicting advice to parents. What do parents do when the doctor advises them to leave their Mongoloid newborn in the hospital and tell the other children he died, but the social worker to whom they are referred for placement takes a different approach to the problem? The social worker has one body of knowledge about the meaning of relationships, and so forth, and the doctor is operating on a totally different basis. The whole process of learning, of the development of new knowledge, leads to an uneven spread among the disciplines—and to the individuals within them—so the patient or client is often the victim of our poor interdisciplinary communication.

Among organized agencies this kind of thing should never happen. Possibly in relation to mental retardation the professions were caught unprepared by the sudden availability of funds which made it possible to put into practice some of their more advanced understanding. But as quickly as possible we must arrive at a common point of departure, not only for mental retardation but for all contiguous areas, if we are to avoid putting patients and parents into the unwitting position of being umpire to our conflicts.

As we have explored the coordination and joint planning of health and welfare services, several major points have emerged.

1. Although we need research first, the most brilliant discoveries lie fallow until the services exist which make them available to the general public. Moreover, new skills and services are both wasted if those who need them are not motivated to use them.

2. There must be sound joint planning and effective leadership throughout the internal and interagency structure of all services if we are to avoid having unmet health and welfare needs, each of which makes the other worse. Even though we may still be a little clumsy with our dovetailing of services, we can with practice learn smooth, economical, and structurally sound dovetailing. We can much better afford to overlap a little than to have strategic gaps.

3. Although it is imperative that this joint planning, this dovetailing, occur between agencies, joint planning is equally important among the disciplines. Almost every major area of concern to any discipline in these days of giant strides in new knowledge is also, and properly, an area in which other disciplines can likewise make a contribution. And our fields have now become so broad that we are not only sharing knowledge, we are also sharing responsibility.

4. Citizens have an indispensable part in this planning. Sometimes they lead the professions—as in legislation for mental retardation. Sometimes they are urgently needed to achieve legislative and financial support for the implementation of new services, such as the dramatic but expensive heart centers, or to strengthen existing resources similar to the homemaker service that move too slowly for lack of popular understanding.

If we can just do our joining effectively, there is untold potential for a better world in health and welfare services. The interlocking is horizontal, among professions; vertical, among levels of jurisdiction; and spherical, among countries of the world. And the threads of economics and education, health and welfare span the whole almost comparable to the lines of latitude and longitude that seem to hold the globe together.

We do live in a global world. No longer can we think in terms of local, state, national, or even continental boundaries in cooperating for the health and welfare of people. Nor can we think of one national or racial group as special or apart from the great ebb and flow of all mankind. To think in such narrow channels is to fail to grasp the realities of our time.

Perhaps the most significant thing that can come from these joint efforts in the fields of health and welfare—in addition to better services to people—will be a way of working together that carries tremendous potential for the future. For mankind to prosper, social inventiveness must keep pace with scientific achievement.

Mrs. Oettinger is chief, Children's Bureau, U. S. Department of Health, Education, and Welfare, Washington, D. C.

This paper was presented before a Joint Session of the Maternal and Child Health and Public Health Nursing Sections of the American Public Health Association at the Eighty-Sixth Annual Meeting in St. Louis, Mo., October 27, 1958.

For Visitors to New York

"Books About Physicians" is an exhibit of the New York Academy of Medicine "devoted to literary contributions by physicians and about medical life." An exhibit case, for instance, is devoted to Hans Zinsser, M.D., distinguished as teacher, investigator, literary man, and poet, whose "Rats, Lice, and History" is a "biography" of typhus. Three cases are devoted to physicians and medicine as portrayed in fiction and drama from Rabelais to Pasternak. Medical essays from Maimonides to Oliver Wendell Holmes and modern-physician poets Merrill Moore and William Carlos Williams are among other items.

The exhibit will be open through June 30, New York Academy of Medicine Library, 2 East 103rd St., New York, N. Y. Daily 9:00 a.m.-5:30 p.m.

What is the place of community health services in meeting the health needs of mothers and children? What guidelines should govern the development of these services? This review of the current situation introduced a panel discussion on these questions at a recent meeting of the Association.

THE ROLE OF COMMUNITY HEALTH SERVICES IN MEETING THE NEEDS OF MOTHERS AND CHILDREN

Edward R. Schlesinger, M.D., M.P.H., F.A.P.H.A.

WHAT DO WE MEAN by community health services? At one extreme the term has been used as synonymous with the totality of health services in a community, including medical and related services obtained on the individual's own initiative and financed wholly from his own resources. At the other extreme, it has been restricted to services administered and financed by governmental health agencies. A middle ground is more reasonable. The criterion of a community service should be the presence or absence of organized action by the entire community, or by groups within a community, in planning, carrying out, or financing the service.

The goal in health services may be considered as the fullest application of presently available medical and scientific knowledge for the benefit of the entire population. Whenever possible this is to be achieved by the provision of a high quality of health services through individual arrangements between the families and practicing physicians, nurses, and other health personnel. The primary role of community health services is, then, to supplement and strengthen these individual arrangements. Strengthening or supplementation may take widely divergent forms. It may be simply health education of the public, as in the promotion of regular health supervision of infants and children. The need for certain diagnostic, treatment, or rehabilitation facilities may become evident as the result of community study and the needed facilities may be built with the use of governmental or voluntary funds. Assistance may be provided to the medical profession itself in its efforts to improve the quality of medical care in the community. This principle need not be violated even when a severely handicapped child, such as a bilateral upper extremity amputee, receives prolonged and complicated care in a community rehabilitation center. The child must still relate, for continued health supervision and care during illness, to a family physician, or to the equivalent under a community-financed health program when the family cannot pay for the costs of such care.

There is no need to review the rapid progress made in health services for mothers and children. These developments were summarized in 1955 in a special number of the publication, "Children," in commemoration of the 20th anniversary of the passage of the Social Security Act.* Furthermore, any at-

* A Twenty-Year Perspective on Services to Children—Developments in Child Health and Welfare Since the Passage of the Social Security Act. Children (entire issue, July-Aug.), 1955.

tempt to delineate even the broad needs in maternal and child health would be out of place in this discussion of general needs. We are more concerned with the over-all goals.

In health services we are seeking what has become fashionable recently to call "comprehensive care." This is usually followed by a long string of adjectives ending in "al," including as a minimum its physical, social, emotional, educational, and vocational aspects. In such care in depth consideration is given to all related factors in the child and his environment having a bearing on the total adjustment of the child, whether in general health supervision of the presumably well child or in care of the handicapped child. Although much discussed, care in depth is a rather scarce commodity.

There are three paths that must be followed simultaneously toward this admittedly almost utopian goal of health care in depth for all mothers and children: (1) research in the development of new technics, (2) spread of generally accepted basic health services to population groups not now being reached, and (3) increased depth of services to those already receiving some type of care.

All research, no matter how "pure" and remote it may seem, may ultimately lead to the development of very practical tools in the field of maternal and child health. In research "basic" and "applied" are purely relative terms. What is applied in clinical medicine as a result of basic research in physiology or biochemistry may bring about basic research in the development of new tools which may then be applied in the attack on community health problems. Yet the differentiation is a matter of practical policy: to what extent shall funds collected or appropriated for health services be used in support of what kinds of research?

Some research is clearly program-oriented. Evaluative studies of all types fall into this group, whether directly concerned with evaluation of the results or the quality of health services, or aimed at obtaining information on the reliability of program tools, such as technics for screening of vision and hearing. One step removed are studies designed to clarify the nature or extent of public health problems. The planned objective in some epidemiological studies is the development of guidelines for community health programs. Others are broader studies of the personal and community factors involved in a particular problem, with no immediate implication for program application. The hope in these studies may simply be the disclosure of some lead which may open fruitful avenues of clinical or laboratory research. Clinical and laboratory studies are still further removed from direct services.

Even if it were possible to set clear limits to program-oriented research, it would be undesirable to establish an inflexible policy regarding the use of so-called service funds for research support. In the attack on certain health problems the need for working tools is so great that considerable leeway must be allowed in support of research in these areas. Most prominent among these problem areas are perinatal mortality and certain handicapping conditions, preeminently cerebral plasy, mental retardation, and convulsive disorders, which appear to be associated with circumstances affecting fetal development and delivery. Effective tools for preventing premature birth would make it possible not only to reduce neonatal mortality sharply, but also to prevent a sizable segment of later physical and mental disability. Very little of our understanding of the factors involved in the production of congenital malformations in experimental animals has been translated into practical tools for the prevention of human malformations, except for notable exceptions in the cases of rubella infection and of

radiation. Large areas in the field of mental health likewise require further exploration before effective program technics can be developed. In all these areas ongoing research is often closely related to service programs through the aid of full-time medical, nursing, and other public health personnel and through financial support by service funds.

More directly pertinent to our present discussion are the twin problems of bringing basic health services to population groups not now being reached and of improving services to those already receiving some type of care. There are still too many communities in this country which lack public health nursing and other basic health services and still too many population groups going without such services, even in communities nominally receiving basic health coverage. Sound community planning points to the inadvisability of devoting large amounts of available funds to expensive services benefiting a relatively few individuals in the presence of other health problems of major importance which are readily susceptible to organized community effort. An extreme example of this approach is the building and manning of up-to-the-minute premature infant care centers to serve an area in which high mortality rates prevail among infants over a month of age. Priority in planning would demand environmental sanitation services to insure safe milk and water supplies and public health nursing services for instruction in proper infant care. Otherwise the services of the premature center would be largely wasted, since so many of the salvaged infants might succumb to the hazards of their environment after discharge to their home community.

There are times when a less urgent but more dramatic service, or one with popular appeal and human interest, can pave the way for more broadly needed services. It may be that community planners, after studying the local situation, will decide that the commuity is not ready to embark upon a broad program to meet its health needs. They may conclude that a single dramatic effort will be more likely to attract community attention and, in the process, promote support for a broader program. The publicity attending surgery for a child with a congenital heart lesion at a distant medical center, especially when nongovernmental funds are used for the purpose, may be grasped as an opportunity to make the public aware of the need for a soundly conceived children's cardiac program. A modern premature center may be used to focus the attention of the public on modern developments in pediatric care, and this can be contrasted with the poor environmental conditions in the area which lead to the death of many full-term infants who had a greater potential at birth for unhandicapped social usefulness than some of the premature infants treated at the center. Under such circumstances there may be some justification for a transitory gross imbalance in the community's health program. The danger, nevertheless, remains that the community may take pride in the show-piece to the exclusion of the regular stock-in-trade inventory and not move toward correction of the imbalance.

Related to this matter of program priorities is the role of the demonstration in meeting the health needs of mothers and children. Demonstrations may take several forms. The role of the frankly experimental demonstration is clear. The experimental demonstration is usually set up to test new public technics or to reevaluate existing technics. This type of demonstration is usually discontinued when its objective has been achieved or when it becomes apparent that the objective cannot be achieved. Service demonstrations, on the other hand, often do not have as clear an objective or end point. Local demonstrations in disease

prevention or detection may be conducted by voluntary agencies in an effort to gain community acceptance and support for ongoing services. The very fact of community acceptance may encourage the voluntary agency to continue the so-called demonstration instead of venturing into new areas of community need.

We have recently had an example in New York State in which cooperative effort between the official and voluntary agencies on the state level helped to hasten the shift of an established program from voluntary to official auspices. For about ten years local chapters of the State Heart Assembly have been promoting and subsidizing programs of prevention of recurrent attacks of rheumatic fever in rheumatic children. A few years ago state aid was made available to local health departments for the costs of diagnostic and consultative services and of drugs involved in such a program of secondary prevention of rheumatic fever, but only a few localities took up this offer and included the costs of this program in their health budgets. Late in 1957, at a three-day conference of representatives of the state and local governmental agencies interested in heart disease as a public health problem, a consensus was reached that rheumatic fever prophylaxis programs should be primarily the responsibility of the official agency. In less than a year since the conference there has been a rapid shift in the direction of health department support for the program.

The development of a state-wide premature infant care program in New York State is a similar type of situation. About ten years ago demonstration programs were initiated, serving two of the five upstate regions of the state. In these programs payment for infant care was envisioned mainly as a means of promoting improved care of premature infants throughout the regions concerned. Full payment was made to a premature center and the attending pediatricians for the care of infants transported to the center from another hospital or from home. Several years ago the demonstration phase as such was concluded. Premature infants were included within the public health law definition of physically handicapped children and state aid was made available to counties wishing to include premature infant care within the scope of the local health program. Counties were further given the option of paying for care of infants in the hospitals of their birth as well as for transport of babies. The only requirement for approval was that the local program meet rather high standards in facilities and personnel.

At the termination of the demonstration all but one of the counties included within the demonstration area elected to continue under state aid, with several additional hospitals being approved as premature centers after they met required standards. Spread of the program outside the demonstration area was slow initially, but has gained momentum recently. This slowness has been due partially to the need to build up community interest in areas not exposed to the demonstration program, and partially to the time lag involved in getting plans approved for renovation or construction of premature nurseries to meet required standards and to provide additional training for pediatricians and nurses staffing the premature nurseries. The program has thus been an instrument for raising the standards of care of premature infants, with gradually widening influence as a larger area of the state is covered following local action.

I had an opportunity in 1957 to review the financing of hospital maternity care of women with complications of pregnancy. There seems to be general agreement that top priority should be given to the provision of the highest possible quality of medical and nursing

obstetrical care during the delivery of such women. There is also considerable weight of qualified opinion in favor of prolonged hospital bed rest under close medical and nursing care for pregnant women with complications threatening premature delivery, in an effort to prolong gestation and reduce the hazards of prematurity. With the help of Dr. Ruth K. Beecroft, regional medical director in the New York City Region of the Children's Bureau, and through her of the other regional medical directors, I ascertained that only seven states included any provision for such care in their state maternal and child health plans. Correspondence with the state maternal and child health directors elicited the information that three of the seven provided state-wide coverage, one was restricted to a single county, one covered a group of counties, one included selected patients at a university hospital primarily for teaching purposes, and one covered only hospitalized tuberculosis patients. Undoubtedly, frankly indigent patients are receiving some kind of hospital care in most areas and the borderline or medically indigent are receiving care in a good many others. But surely there must be many areas in other states in which this aspect of the maternal health program should not be neglected.

In the face of existing unmet needs we will have to keep running to remain in the same place. The number of persons under 21 years of age will continue to increase for some years, even if the birth rate should fall in the near future. With the continuing rise in the proportion of the aging in the population there will be an ever-greater burden on the intermediate age groups to finance and staff the services needed for the young and old. With the emphasis recently being placed on the needs of the aging there is some danger that the needs of the other end of the age scale may be given secondary consideration. The unit cost of health services, like all personal services, continues to rise. It has been suggested that the cost of hospital care, for example, will rise to $50 a day within one or two decades. This will, in turn, increase the pressure for still earlier discharge from the hospital, resulting in more demands for other community services for the discharged patient.

Despite these obstacles, our goal remains the provision of health services in depth to all mothers and children, with community health services supplementing and supporting the health services obtained by families on their own initiative without financial help from the community. For orderly development it is desirable to proceed from the general provision of those services likely to be most productive in terms of the funds and personnel involved, gradually increasing the depth of these services to approximate the relatively few comprehensive services, and to reserve the use of funds for demonstration purposes to frankly experimental programs and for programs which have a fair chance of being continued on a regular program basis after conclusion of the demonstration phase. In practice, however, funds may be appropriated and programs instituted as a result of popular pressures and special legislative interests, so that these can be only general guidelines toward the attainment of our goal in health services which are necessary to meet the needs of mothers and children.

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In question and answer form, Dr. Baumgartner offers a vivid view of medicine in the Soviet Union.

WHAT ABOUT SOVIET MEDICINE AND PUBLIC HEALTH?

Leona Baumgartner, M.D., Ph.D., F.A.P.H.A.

General Arrangements

Were You Allowed to See What You Wanted to See?

UPON ARRIVAL each of us listed what we wanted to see. As we were all specialists interested in different aspects of health work, our list was very long. Every effort was made by the Ministry of Health to get us where we wanted to go and I thought they did remarkably well in fulfilling our requests. People on the streets and professional colleagues were most friendly and hospitable.

Our Russian-speaking American physician and three excellent Soviet interpreters accompanied the mission. Of the latter, one was a physician and the other two had excellent scientific backgrounds. Translations were accurate and complete and we felt that we were given a good opportunity to learn about their affairs.

NOTE: Dr. Baumgartner spent almost five weeks in the U.S.S.R. with five other American physicians as part of the cultural exchange programs sponsored since 1958 by the Soviet and American governments. For a few days she was on her own as a tourist. The group saw hospitals, clinics, first aid and blood transfusion centers, medical schools, nurseries, sanatoria, maternity homes, research centers, etc. They visited homes in several cities and saw people at work and play. Most of the time was spent in cities, with only two short jaunts into rural areas. They traveled about 13,000 miles—Moscow, Leningrad, Kiev, the Black Sea area, Tbilisi (Tiflis), and central Asia. The following questions are those which have been most commonly asked Dr. Baumgartner about Soviet medicine by both professional and nonprofessional individuals since her return.

What Is the Main Difference Between Medical Care in the U.S.S.R. and in the United States?

I have found that the hardest thing for Americans to understand about medicine in Russia is that everything is done by the government. The Ministry of Health provides the medical, dental, nursing, and related health services that the people get. There are ministries of health in all the republics and a vast network of local health services. The government also is in charge of all the institutions which train doctors, dentists, nurses, research workers, midwives, and other ancillary health workers. It is responsible for all the hospitals, laboratories, medical schools, and research institutes. It finances and is responsible for all the research that is done. It manufactures or imports all the medicines, braces, hypodermic needles, hospital beds, and crutches—everything that is needed for the medical care of patients. It plans, approves, and supervises all the new buildings into which such activities are expanded. The health ministries also set standards for the construction of all other building in Russia.

People do not pay for any of the services they get, with the exception of the drugs and medicinals that they may use when they are at home. These they purchase in drug stores which again are run by the government. Only a very few people arrange to have their own private medical care. They pay for this either through goods or money.

Are There Differences in Emphasis in Medicine in the Soviet Union and the United States?

Yes—they have put greater emphasis on the prevention of disease and on the care of mothers and children. This is understandable because they have needed workers so desperately to build up the country. They have, therefore, put great emphasis on keeping people at work. Thus, if disease is prevented, if children can be well cared for away from home while their mothers work, if the disabled can be helped to work even part time, more hours of labor are made available. This would also seem to be one explanation for several of the other special services found, for example, facilities for sleeping or resting at the factory for convalescent workers who are not yet ready to work a full day or to return home for the night—and for the medical services provided in factories, on collective farms, and so forth.

How Does a Russian Family Arrange to Get Medical Care?

The organization of medical care in Russia is as follows. The cities are divided into districts. In each district there is a so-called polyclinic which is a combination of a general practitioner's office, a specialist's office, a diagnostic center, and the outpatient department of a hospital. If you are well enough to go to the doctor, you come to this polyclinic. There you also get the tests usually needed for diagnosis and are treated.

As an adult you will be cared for by the Soviet equivalent of an internist, or perhaps better translated as a therapist. This physician is not considered or trained as a specialist as our internists are. Children may go to a special children's polyclinic staffed by "pediatricians" or they may be cared for by pediatricians attached to the general polyclinic. If you need to see a specialist, you see one of the specialists on the staff of the polyclinic. If you are sick enough, you are taken into a hospital. Rarely will the physician who cares for you in the polyclinic care for you in the hospital too. There are also ancillary medical services in factories, schools, nurseries, kindergartens, and on farms. A physician or a nurse will also go to the house if the patient is too sick to come to the polyclinic. We were told one simply asked for help and a doctor or nurse would visit the home the same day.

In the rural area I visited there was a doctor attached to the cooperative farm, but most of his time and most of his work was done in a district hospital. There was a small four-bed maternity home on the farm and, of course, pediatricians were there to take care of children in the nurseries that were maintained so that the mothers could work in the fields.

Does One Have a Free Choice of a Doctor or a Hospital?

The answer to this question is not quite clear. Some families indicated that they had changed doctors, but others had obviously had the same doctor for many years. Most of the physicians in the two polyclinics I visited had been working there for over 15 years. People seemed to take it for granted that they should go to any hospital that the doctor suggested.

I made several home visits with a general practitioner. One patient had called in because of a dizzy spell in the morning and we were there in the afternoon. The other patients had been ill for some time and the physician was checking up on them. One of them, a lawyer with coronary heart disease, wanted to know how long President Eisenhower had been kept in bed and what medicines he was given. The "internists" visit only adults; "pediatricians" go out to see children.

One can get an appointment with a

doctor apparently whenever one feels it is necessary. The minister of health told us that she did not care if the patient got "unnecessary" visits from the doctor. Such visits might uncover previously unsuspected disease and so it is "cheaper in the long run" and it "adds to family happiness."

Can One Get a Private Hospital Room?

As all medical and hospital care is free the distinction between private, semiprivate, and ward care that is made in the United States does not exist. In the hospitals that I visited I saw no private rooms, but I was told that in special units, such as for the diplomatic corps patients, there are private rooms.

Is There Anything Like the Blue Cross Plan?

I heard of no voluntary health insurance of any kind. This is unnecessary in the U.S.S.R. The people there consider that medical care, like education or roads, is a public service and therefore they do not contribute to it except through taxes. They could not understand why families in the United States were happy and proud to care for themselves. Nor could they understand why people should volunteer blood for transfusions for their relatives. Blood in the U.S.S.R. is collected from people who are paid to give it, except for special drives usually under the auspices of the Soviet Red Cross. The blood is given free to the patient who needs it. When I explained our system I felt there was no understanding of our way of looking at things. A common rejoinder was, "But why? Do families also have to go out and get the penicillin the patient needs?"

Does One Get the Same Quality of Care Whatever Their Income?

Although I saw no evidence that the level of income itself affected the quality of ordinary medical care, it is true that some private practice exists outside of the government facilities. Thus people with enough money—or through friendship—have access to care by selected doctors, after hours, and so forth. This practice plays a minor role in the whole scheme.

The elite, that is public personalities in various fields, are given access to the best in both medical personnel and hospital facilities. I heard that the military hospitals were above the average.

Is Medical Care the Same All Over the U.S.S.R.?

The organization is the same, but the minister of health herself and other physicians pointed out that there was a considerable difference in quality of care from one area of the country to another. This, of course, is true in the United States. It is not surprising that it is even more true in the U.S.S.R. where they have had to do so much to build up their medical and hospital system within the last 40 years. Visitors from countries, other than the United States, who have sometimes traveled more widely over the U.S.S.R. than Americans report very poor medical facilities and health conditions in some parts of the country "off bounds" to Americans.

About Doctors and Hospitals

Do They Have Enough Physicians and Dentists? How Do the Figures Compare with Ours?

Over-all figures for the U.S.S.R. show approximately the same number of doctors and dentists per thousand population as we have had in the United States. I was interested that Tashkent, a town in Central Asia which has been rapidly developed during the last 40 years, has the same ratio of physicians and dentists to population as we have in New York City. However, it must be re-

membered that their doctors do not appear to be as well trained as ours and do not generally have as well trained assistants.

They are training physicians at a much higher rate than we—their most recent figures show 164 physicians per 100,000 people compared with 130 per 100,000 in the United States. The current census in the U.S.S.R. may give a more accurate picture, for their population figures are admittedly not as accurate as ours.

There is, however, a wide difference in the number of doctors per unit of population in different areas. For example, approximately 11 per cent of the doctors and dentists are in rural areas, but 56 per cent of the population lives there. They do a great deal to attract doctors to rural areas. A young doctor who goes into a rural area to practice will get more salary, twice as long a paid holiday, and better chances for postgraduate training. He sometimes is given a house (rent free) and heat, cows, chickens, and so on. Getting well trained doctors to settle in rural areas where good hospitals and educational and cultural facilities are lacking is a problem throughout the world.

What Kinds of Hospitals Are There and How Do They Differ from Those in the United States?

All kinds of hospitals, both general and specialized, exist in the U.S.S.R., just as in the United States. The chief specialty hospitals are those for so-called psychoneurological disorders, pediatrics, tuberculosis, and infectious diseases. If 50 per cent, or more, of the capacity of the hospital is used for education of physicians, the word "clinical" is added to the name of the hospital. There are also leper and psychiatric "colonies," though I did not see any. Hospitals in cities vary in size from about 35 to over 1,000 beds.

In judging hospitals one encounters one of the same problems involved in judging other things in the Soviet Union, that is, the problem of equating good buildings, shiny machinery, and a lot of equipment with good care. Certainly, the hospitals in the U.S.S.R. do not seem to meet the standards of hospitals in the United States. For example, I looked particularly for handwashing facilities in the operating and delivery rooms. In only one did I see the elbow, knee, or foot controls so common in American hospitals. One could jump to a quick conclusion that the chances of contamination were very great. Closer observation showed that when doctors scrubbed or wanted to wash their hands attendants poured huge pitchers of water over their hands. Thus they substituted labor for equipment.

What About Soviet Skills in the More Complex Surgical Technics?

The more complex surgical technics are not as widely available in the U.S.S.R. as in the United States. For example, brain surgery and cardiac surgery are practiced in the U.S.S.R., but not nearly so extensively as in the United States. We found people who were performing the same operations that are performed in the United States, though admittedly not in all parts of the country. They attempt to send patients who need this special service to areas where it is available. It was our impression that many, many patients went without such services. It is to be remembered that this happens all over the world. Moreover, as the health minister told us, they had concentrated on "first things first"—the prevention of epidemics and the control of preventable diseases have received top priority.

What About Nursing in the Home?

There are nurses who go into the home, both to care for the sick and to help educate people about what they ought to do about their own health.

Are Their Nurses as Well Trained as Ours?

Soviet nurses have less training and seem to be less of a "professionalized" group than ours. The nurses work much more directly under doctors and apparently do less on their own. As a matter of fact, we saw doctors doing many things which are done by nurses in the United States.

How Is the Family Taken Care of If the Mother Is in the Hospital?

Soviet families seem to act like families anywhere. They get together and help each other out.

Are People Educated to Have Medical Examinations Regularly, to Have Examinations for Diseases Such as Cancer, Tuberculosis, Diabetes? Can They Get Such Examinations?

We were told that medical examinations of this kind were encouraged, but many of the people that we asked did not seem to have had them. I was under the impression that more factory workers had regular physical examinations than did other adults. Children get them in the schools, kindergartens, and day nurseries regularly—more often than we think necessary. I found little interest in the special "drives" we are accustomed to, though they have used them to control typhus fever, malaria, and poliomyelitis.

What About Dental Care?

Dentists are trained in special institutes. They are called stomatologists. Of course they get specialized work and many work in hospitals. Dental care, similar to medical care, is free. A great many people have filled teeth. Incidentally some of the fillings are made of stainless steel and at first seem quite strange in appearance. Fluoridation of water supplies is being seriously considered as a mass method to prevent dental caries.

Health Education

What About Health Education?

People are taught a great deal about the value of health, the causes of various diseases, how to avoid them, and so forth. Every physician is supposed to give health talks regularly—to school children, to the occupants of a housing project when measles or some other easily transmissible disease breaks out, etc. He is paid an extra stipend for these talks. Medical students take a course in health education. Pamphlets, posters, and movies on all kinds of health topics are produced in many languages by the national, state, and local health ministries. The pamphlets seem more widely read there than here, possibly because reading per se is still a more exciting adventure there than in the United States. In some clinics we were told one can hear recorded health talks while one waits for the doctor, although I did not hear any such talks. I did see many people reading health pamphlets.

What Ideas Do People Have About Medicine in the United States?

The Soviet citizens whom we saw (professional and nonprofessional alike) are quite uninformed about what goes on in the United States. They are quite ignorant about how we live and about our political and economic systems, except that we were assured that everyone in the U.S.S.R. realizes that we have a higher standard of living. That they are willing to work hard to equal our status was obvious. They know little of life in other noncommunist countries. They do not know about our old-age pensions, unemployment and disability and workmen's compensation benefits, or health insurance schemes. They are very sure that people in the United States have great difficulty in getting medical and hospital care when they need it. In fact, one of the most common questions that we were asked was "What do you

as a doctor do when a patient needs a transfusion and hasn't got $50.00 to pay for the blood?" or "What happens when a person has an accident on the street and can't pay for the ambulance to send him to the hospital?" They seem to believe that in the United States medical care is available only when people can pay for it. Many of the doctors were curious about our new antibiotics, blood substitutes, and methods of treatment. They are also very curious about the automobiles and other goods we have and how we live. But it is very hard to convince them that there is a substantial amount of free medical care given to the less privileged in this country and that those who can are quite happy to pay for it.

Public Health

What About Public Health in the U.S.S.R.?

There is no differentiation in the U.S.S.R. between public health and the rest of medicine as is sometimes made in the United States. Everything done in the field there is spoken of as "public health"—all of it is for the purpose of improving the health of all the people. In the words of M. D. Kovrigina, until recently the U.S.S.R. minister of health (a physician), "Soviet public health represents a system of governmental and social measures, the aim of which is to prevent and cure diseases and to promote healthful conditions of work, life, rest, a high capacity for work, and human longevity."

How Do the Russians Handle Problems of Epidemics, Sanitation and Safety of Food, Water, and Milk Supplies?

These matters are handled in the U.S.S.R. much as in other countries. Great emphasis is placed on controlling epidemics and making water and milk supplies safe. Sanitary standards, they freely admit, are not up to those in the United States. Toilet facilities are generally poor. Soviet doctors who have traveled to the United States told us they were greatly impressed by the cleanliness of American public toilets. A remarkable success in reducing the incidence of the major communicable diseases has been achieved in the U.S.S.R. One still sees more persons ill of diarrhea or pneumonia, for example, in hospitals there than one does in the United States.

Are Children Automatically Vaccinated Against Smallpox, Typhoid, and Poliomyelitis?

Yes—they also receive diphtheria immunization. About five million children so far (February, 1959) have been vaccinated with Salk vaccine which the Ministry of Health manufactured. They use the same method developed in this country. At the same time they are also experimenting, just as we are, with a live vaccine which some scientists hope will be more effective. They seemed in general more active in the live virus field than we. They said they manufactured and used live vaccines for tularemia, anthrax, influenza, smallpox, brucellosis, mosquito fever, and tuberculosis (BCG). The wide use of a mixed vaccine to protect against typhoid and paratyphoid fevers as well as three separate strains of dysentery in the south may well account for the relatively small number of cases of these diseases seen in spite of the quite poor sanitary conditions.

Psychiatry

What Kind of Treatment Is Given to the Mentally Ill?

I personally did not get to see any hospitals for the mentally ill, but I did talk at length to American physicians who had spent some time visiting them in the summer of 1958. The following

remarks are based largely on their reports. Insulin shock therapy and tranquilizers are used extensively. Electric shock is limited to unusual cases and is used usually only in teaching institutes attached to medical schools or research centers. Psychoanalysis based on Freudian concepts is not practiced, though in one conversation a Soviet physician told me that he believed some Soviet psychiatrists did use Freudian concepts. Psychotherapy, if defined as having a physician study the patient's background, his emotional conflicts, environmental stresses, and personality characteristics, is widely practiced; but such information is not interpreted or used as Freudians would interpret or use the same information. American visitors have been most impressed perhaps by the high ratio of staff to patients in the psychiatric hospitals and the extent of outpatient psychiatric care available. In Moscow, for example, there are outpatient facilities where the patient may stay most of the day—busy in supervised occupational or recreational therapy or even getting some vocational training. All patients see the doctor, it is reported, at least every two weeks in the clinic and the doctor may also visit the patient at home. The availability of such service cuts down on the need for psychiatric hospitals. In one psychiatric hospital in Moscow the ratio of staff to bed patients was one doctor for each 15 patients, one nurse for each four patients, and one and one-half "aides" for each patient. Such "aides" receive three months training before they go to work. Patients with psychoneuroses, psychoses, and schizophrenia are treated by psychiatrists in the polyclinic, in general hospitals, or in psychiatric hospitals, depending on the nature and severity of the disease.

I saw several of the popular Soviet health resorts and sanatoria. The government spends a considerable portion of its health budget in maintaining these institutions—certainly, more than we do in this country. They resemble the spas long popular in Europe. Here are found sanatoria and resorts in vacation spots—along the Black Sea (which reminds one of the Carribean or the Mediterranean), in the high mountains, or in other localities. Here the overtired executive or bureaucrat, the troubled factory worker may go—but only with a doctor's approval, which is apparently not too hard to obtain. He may pay for part of the care, but most of it will be borne by the worker's union. In the weeks that he spends in one of these sanatoria or health resorts he gets a great deal of personal attention—medical examinations, baths, massages, and treatments of all kinds. A balanced daily schedule, including rest, recreation, and treatment, is arranged. Some of the installations are quite elaborate with beautiful gardens and swimming pools. Some are located in palaces of the former rulers. Away from home and family cares, from the overcrowded city apartment, and from the pressures on the job the patient, it is reported, recovers quickly. It would seem, as Dr. Thomas Parran once stated, that this is a relatively cheap form of treatment for the mentally or emotionally overstrained, or "nervous" individual. A "pass" to the more popular of these is a real prize, particularly at the height of the vacation season.

Maternal and Child Health

What Provisions Are Made for the Pregnant Woman?

Great emphasis is put in the Soviet Union on the care of children and pregnant women. Much attention is paid to safeguarding the health of the mother. She routinely gets 56 days maternity leave before and 56 days after the birth of her baby. For this period she receives full wages. If there is any medical reason why she should have a longer time to recuperate, she is given that with

full pay. She is also allowed to accumulate her vacation. I saw some mothers who had had as much as six months at home with the baby before they went back to work. All her prenatal care and her delivery, either in a hospital or at home, are provided automatically. Normally, deliveries are performed by midwives under the supervision of physicians. These midwives have less training than physicians. In the cities most of the births in the U.S.S.R. are now reported to be in hospitals; in "rural" areas the figures varied—but around 40 per cent for all but the underdeveloped areas would seem an average. The births usually do not occur in a general hospital but in a separate maternity home. On the collective farm we visited in the Ukraine, such a home had four beds and only a few facilities for emergencies. However, a district hospital was only a 30-minute drive away.

What About Illegitimate Children?

As far as I could find out the mother who is going to have an illegitimate child receives the same medical care as any other mother. I thought it was interesting that this problem was not spontaneously discussed at any time, though I talked a great deal about care for mothers and children. When I inquired I was told that an unwed mother may name a man, whose passport is then stamped "married"; and whether married or not, from then on 25 per cent of his pay is automatically withdrawn for the child's support. If the girl does not choose to name a man, she usually keeps the baby. There are special homes for adoption (which also house orphans) where she may send the baby if she does not want to keep the baby. However, the turn-over in such homes is rapid as the demand for children is great. Unwed mothers seem happy and proud to raise their own children.

Are Abortions Legal?

Yes, they have been legal since 1955. This is one of the many examples in the Soviet system where practice has changed. From 1921 to 1936 abortions were legalized and were very common. From 1936 to 1955 they were illegal. Though now legal, they are discouraged, we were told.

How About Birth Control?

The dissemination of birth control information has always been allowed. In the 1921 to 1936 period there was an active promotional campaign. I saw various contraceptive devices for sale in the drug stores. There are some ardent exponents of birth control in the U.S.S.R. among the gynecologists but I did not happen to meet any of them, nor was the subject discussed by any of the doctors we visited. I understand physicians are chiefly interested in birth control methods as a way of preventing abortions. There are no separate birth control clinics.

What Special Provisions Are There for Taking Care of the Health of Children?

Great emphasis is put on health care of children from birth on through schooling. There is great affection and concern for children. Families talked of the ambitions they had for their children just as parents elsewhere do.

Children are apparently always cared for by physicians who have special training in pediatrics. There are many nurseries (admittedly not enough to keep up with the demand) to care for children from shortly after birth up to three years of age. Pediatricians were in charge and continuously on duty in the nurseries I saw. Daily massage is given. We were told mothers were more willing to leave their children there if pediatricians were in charge. Diet, inoculations, rest, and play are all carefully supervised. Babies may live there almost any time, day and/or night, depending ap-

parently on the needs and desires of the parents. She is given time off to come to breast-feed her infant. There is a high ratio of staff to infants—greater than in most of our institutions of a similar nature. Tender, loving care abounds. After three years of age a child attends kindergarten until he is seven, at which age he goes to the regular schools. There are also special medical services for teen-age workers. Pediatricians are attached to both. Many routine examinations are given, as well as complete care for the sick child. The pediatrician attached to the nursery will also care for and visit the baby in its own home.

Are There Any Noticeable Psychological Effects on the Very Young Children Cared for in Nurseries from Soon After Birth On?

They seemed remarkably healthy and happy—so much so that one wonders if the almost universal opposition to this practice in the United States should be reexamined. In the Soviet nurseries I noticed there was an amazingly high ratio of staff to babies. There was also little turnover of staff, so that the babies got continuing attention from the same persons. The behavior of the children seemed somewhat less spontaneous as compared with a group of American children of the same age.

Medical Training

What About the Thoroughness of Medical Training?

The American physician usually has a total of about 20 to 22 years of training; the Soviet physician only 16. The Soviet elementary and secondary schools seem to teach in ten years what we teach in 12, and the medical students to whom I talked all had had a great deal of science in these years. The medical school course is six years long. Soviet physicians specialize earlier in medical school, generally choosing one of three areas: pediatrics, clinical medicine (i.e. general adult medicine and surgery), and hygiene (administrative medicine, school and industrial hygiene and sanitation). Some go on to acquire higher medical degrees—and all supposedly have an opportunity every third year to return to specially organized training institutes for short- or long-term postgraduate courses. I talked to some physicians who had not been to any postgraduate institute and others who had had from a few weeks to several years of such training.

Since the revolution the amount of medical training has been increased. It seems obvious that, particularly in the earlier years, there was great emphasis on training many health workers so that disease and premature death could be prevented and as many persons as possible would get some care. Great use has always been made of "subprofessional" workers—the midwife, a doctor's assistant called the feldsher, and the technician. They lean heavily on these workers, assigning them to specific tasks. This has helped them get some kind of service out to the "grass-roots." The ancillary staff are all trained in separate institutes, not in the medical schools or institutes. All students are paid stipends when in school and pay no tuition. Plans for the future envisage a continuing improvement of training for health personnel. It should be stressed that Soviet education in general has much in common with education in the rest of Europe.

Is There Special Training for Health Officers and Administrators?

Yes, there is. Of the seven such officials I talked to, all had had some special training in a public health institute and some talked of getting more. Some had considerable experience as well in a particular clinical field, e.g., surgery.

Are There Many Women Doctors?

Yes—70 per cent of practicing physicians are women; 60 per cent of the medical students are women. This is not as surprising as it first seems when one remembers that 45 per cent of all Soviet workers are women. The heads of most of the important institutions seemed to be men.

Are Doctors Well Paid?

All are paid a regular salary. Some work on two or one-and-a-half jobs, thereby increasing the amount they earn, but it is unusual for a woman to work on more than one job. The salaries increase within given categories, as the years of service increase. All receive paid vacations and pensions on retirement.

Incomes vary widely, depending on the training, responsibility, and number of posts a doctor has. The elite (for example, members of the Academy of Medical Sciences, top research scientists, professors) are extremely well paid. Some have reported they received more than they could spend. The academicians are greatly respected and have many special privileges (cars, chauffeurs, summer homes, etc). They can be paid by more than one institute. Physicians receive honoraria for giving scientific talks, serving professional panels, writing scientific papers, or giving talks on health education to the public.

How Are Specialists Trained?

All medical students specialize during their six years in medical school. They all take a common course, but in addition have both specialized courses and more of certain subjects. Pediatricians, for example, study largely the anatomy of children; "hygiene" majors have more training in bacteriology than general practitioners. After medical school one can apply for a job in any specialized hospital, clinic, or institute. Those who can qualify through a scheme of highly competitive examinations, or are chosen because of special ability, go on for further specialized study, either immediately or after an initial three-year period of work. There is apparently an active search during medical school years for the bright student who has ability and interest in research. There are special research projects, science clubs, and the like.

There are special graduate institutes of administrative medicine and most of the top people we met in local ministries of health had had at least some training in such institutes. The problems of planning for the anticipated national and local needs for personnel and facilities are studied seriously and extensively.

Medical Research

What Is the State of Medical Research in the U.S.S.R.?

Medical research has a high priority. The top people in the field are apparently given anything they want or need to help their work. Some of the laboratories we saw were well equipped—others poorly. The caliber of work being done varied widely. They are working on many of the same problems which engage scientists elsewhere. I was interested that one laboratory would not necessarily agree with the work of another. Elaborate research plans and goals are set up and carefully reviewed by the top people in the particular field. The Academy of Medical Sciences is responsible for the research done, even though the Ministry of Health finally approves the annual budgets. The Academy of Medical Sciences does not have the status of the all-powerful Academy of Sciences. There appeared to be a considerable separation of medical research and medical education.

Some Soviet scientists know a great

deal of what is going on in other countries—others do not. Our scientific journals, as well as European and some Asian ones, are seen in many laboratories. Most of the research workers read or speak one or two other languages, English and German most frequently.

Pavlov's concepts of the conditioned reflex permeate many fields of medico-scientific endeavor.

What Impressed You the Most About Their Research?

The great respect and tribute paid to the scientists by all the Soviet people.

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Michigan Conference on Aging

"Designs for Retirement," the 12th annual Michigan conference on aging, is to be five complete conferences in one. Each person attending will enroll in Retirement Financing, Retirement Health, Retirement Housing, Retirement Preparation, or Uses of Retirement, but will also be able to participate in the over-all conference through several general assemblies and social hours. The conference is also billed as "useful as a forerunner to the White House Conference on Aging" called by the President for 1961.

The date is June 22-24; place is Michigan Union, Ann Arbor; fee is $7.50. Pre-registration must be completed by June 10. Further information and registration cards from Wilma Donahue, chairman, Division of Gerontology, 1510 Rackham Bldg., Ann Arbor.

Immediately following this conference will be a National Leadership Training Institute designed for those who may have local, state, or national leadership responsibility for activities leading up to the White House Conference. Registration and information on the Institute from Special Staff on Aging, Department of Health, Education, and Welfare, Washington 25, D. C.

This study of the ways in which medical students see public health as a career concludes that few are interested in full-time work. There are some who have inclinations toward public health work and the authors discuss their characteristics.

PUBLIC HEALTH AS VIEWED BY THE MEDICAL STUDENT

Robert E. Coker, Jr., M.D., F.A.P.H.A.; Kurt W. Back, Ph.D.; Thomas G. Donnelly, Ph.D.; Norman Miller, Ph.D.; and Bernard S. Phillips, Ph.D.

THE Study of Choice of Specialties in Medicine, sponsored by the Committee on Professional Education of the American Public Health Association, is exploring factors motivating physicians to enter or not to enter the field of public health. One of the phases of this study* has concentrated on medical students and their views toward public health as they plan for their careers.† The first questions to be answered in an attack on this problem are: (1) "What are the attitudes of medical students toward a career in public health?" and (2) "What are the characteristics of students who are favorably disposed toward this career?"

The data on which we are here reporting were collected from students in eight medical schools who completed self-administered questionnaires concerned with various factors related to specialty choice. The eight schools were selected in a stratified random sample from a universe of 75 medical schools in the country (a few schools with special conditions were excluded). All the students in each of the selected schools were asked to complete questionnaires in specially arranged group sessions, with individual follow-up of nonattenders. The over-all completion rate was 91 per cent for all schools, and ranged for individual schools from 80 per cent to 100 per cent. A total of 2,669 questionnaires was returned.

In order to measure the intensity of feeling either for or against a public health career the questionnaire included a series of eight items on this topic. Six of those items took the form of statements which the student was asked to rate on a six point scale in terms of his agreement or disagreement with them. There were three degrees of agreement and three degrees of disagreement. The statements (arranged in order of decreasing favorableness toward public health) were:

1. "I am considering making public health my major field of interest."
2. "I can easily see myself quite happy working in public health."
3. "I am thinking of doing some work in public health."
4. "I might work in public health if I don't get into the field which I prefer now."
5. "I would never like to have anything to do with public health."
6. "I can hardly think of anything worse for me to happen in my medical career than having to work in public health."

* The research program from which this report originated is supported by a grant from the National Institutes of Health to the American Public Health Association, John H. Venable, M.D., principal investigator.

† The conceptual framework of the study is described in some detail in the following reference: Back, Kurt W.; Coker, Robert E., Jr.; Donnelly, Thomas G.; and Phillips, Bernard S. Public Health as a Career of Medicine: Secondary Choice within a Profession. Am. Social. Rev. 23:533–541 (Oct.), 1958.

Table 1—Attitudes Toward Public Health (N=2,669)

	Agree			Disagree		
	Strongly	Somewhat	Slightly	Slightly	Somewhat	Strongly
1. I am considering making public health my major field of interest.	0%	1	4	8	18	66
2. I can easily see myself quite happy working in public health.	4%	9	18	21	22	24
3. I am thinking of doing some work in public health.	2%	6	19	20	24	29
4. I might work in public health if I do not get into the fields I prefer now.	1%	5	14	15	21	42
5. I would never like to have anything to do with public health.	7%	9	14	28	23	19
6. I can hardly think of anything worse for my medical career than having to work in public health.	9%	9	9	23	20	30
7. Are you at all interested in working in public health?		Yes 21%		No, not at all 79%		
	1—5	6	7	8		
8. Student rankings of public health among eight fields of medicine.	16%	14	25	44		

Note: Percentages are in each case based on those answering question.

Another question (7) asked: "Are you at all interested in working in public health?" The alternative answers offered were, "Yes," and "No, not at all."

Finally the student was asked to rank eight fields of medicine according to his interest in working in them. They were dermatology, general practice, internal medicine, obstetrics-gynecology, pathology, psychiatry, public health, and surgery. The rank given to public health serves as another indication of interest in this field.

Table 1 shows the students' answers to these questions. As expected, very few students indicated that they were considering making public health their major field of interest (question 1). Only 5 per cent agreed at all with this statement, and practically all of them only slightly. The answers are a little more favorable to the questions concerning some work in public health (questions 2, 3, and 7) and concerning public health as an alternative choice (question 4). Here the answers favoring public health range from 20 per cent to 34 per cent. In both instances, however, the majority of those agreeing with the statement indicate only slight agreement, while those disagreeing tend to disagree strongly. More than a quarter of the students agree with the statements rejecting public health as a career (questions 5 and 6).

Students answering "Yes" to question 7 ("Are you at all interested in working in public health?") were asked to specify what kind of public health work they were interested in. Of this group, about one-fourth (24 per cent) gave no specific answer. 22 per cent expressed an interest in epidemiology or research, and 11 per cent gave answers indicating

that they would like to work in "community health." An additional 10 per cent specified preventive medicine. Most of the answers were rather vague, but there were a very few who specified work as a local health officer. In general, the replies gave the impression that even among those expressing an interest in public health, there was considerable confusion as to what the field comprises. The implication in most instances was also that they visualized only part-time activity in public health while carrying on a practice in their chosen fields.

The ranking of the eight specialties provides further confirmation of the lack of interest of medical students in public health. Only one student in six (16 per cent) ranks public health fifth or or higher. The other students have at least five fields which they prefer to specialization in public health.

There was considerable variation among the eight medical schools in students' answers to these questions. However, these differences were not related to the more obvious characteristics of the schools themselves (public-private, quality, and geographical location). We conclude, therefore, that the differences reflect individual conditions in each school such as faculty influences, nature and quality of teaching of preventive medicine and public health, and the students' orientation.

This poses the question as to whether these differences reflect more initial differences in students admitted to these schools or influences within the schools themselves. One way of attacking this question is to look for differences among the four medical school classes in the attitude of students toward public health. Table 2 compares the answers of stu-

Table 2—Attitudes Toward Public Health by Year at School

	Freshmen	Sophomores	Juniors	Seniors
1. I am considering making public health my major field of interest. (Per cent agree)	6	5	5	4
2. I can easily see myself quite happy working in public health. (Per cent agree)	34	30	32	33
3. I am thinking of doing some work in public health. (Per cent agree)	25	25	27	29
4. I might work in public health if I do not get into the fields I prefer now. (Per cent agree)	19	20	21	16
5. I would never like to have anything to do with public health. (Per cent disagree)	70	69	71	75
6. I can hardly think of anything worse for my medical career than having to work in public health. (Per cent disagree)	75	72	72	75
7. Are you at all interested in working in public health? (Per cent yes)	21	20	22	22
8. Proportion ranking public health among first five fields of medicine.	11	14	20	20
N=	731	702	647	589

dents in the different classes. In the total sample there is no decisive trend from class to class in the replies to any of the questions. Similarly, there is little evidence of a trend in most of the individual schools.

We can also rank the schools according to favorable responses to public health for each year for each question. Schools show a considerable consistency in this standing from class to class; the coefficient of concordance (which measures the agreement in the ranking of the schools for the different classes) is 0.59.* These things indicate that the differences between schools are as great in the freshman year when there is yet little influence by the school itself as they are in later years.

This does not mean that experience in medical school has no effect on the attitudes of medical students toward public health. It is likely that there are such effects, and additional data will elucidate this question and will be the subject of future reports. Regardless, however, of the influence of the schools, the data here examined indicate significant differences among the students themselves.

Students favorably disposed to public health may differ from students not favorably disposed with respect to (1) background, (2) general experience in college and medical school, and (3) attitudes and values. Let us now examine these differences.

The eight questions were interrelated sufficiently to justify combining them into a Guttman scale.† This scale scores disposition to enter public health from zero (least disposition) to eight. In the following discussion we shall divide the students according to their scores into three groups: the favorably disposed group (scores 7 and 8), the middle group (scores 2-6), and the unfavorably disposed, almost antagonistic group (scores 0 and 1).

As Table 3 shows, those medical students who are relatively favorably disposed to entering public health are more

* Significant at the 5 per cent level.

† The questions were scaled by the Guttman technic; the reproducibility coefficient was 0.92. Nonscale types were assigned by minimum error. The table below shows the dichotomies of the eight questions and the per cent of positive responses in the 20 per cent sample which was used to construct the scale:

Item	Positive	Negative	Per cent Positive
Rank of public health among eight fields	1–5	6–8	18
Interested in work in public health	Yes	No, not at all	20
Consider public health as main field	Agree Disagree slightly somewhat	Disagree strongly	30
Never like anything to do with public health	Disagree strongly somewhat	Disagree slightly agree	39
Can see himself happy in public health	Agree Disagree slightly	Disagree slightly somewhat	50
Might go into public health if not into present choice	Agree Disagree slightly somewhat	Disagree strongly	53
Thinking of doing some work in public health	Agree Disagree slightly somewhat	Disagree strongly	72
Hardly anything worse than work in public health	Disagree	Agree	81

The pure scale types of our positive and negative groups are thus defined that those leaning toward public health, ranked it high compared to other fields, or were interested in working in it make up the favorable group; the antagonistic group disagreed strongly about going into public health even as a secondary choice or agreed that this would be the worst which could happen.

likely to come from low-income families, are more likely to be in debt, and are less likely to count on their families for help in getting established in medical practice.

Looking at fathers' occupations, we see that the group most favorable to public health are those whose fathers are in professions other than medicine. Those who are less favorable are more likely to have fathers who are businessmen or physicians. There are no noteworthy differences among the other occupations.

With respect to religious background, those favorably disposed to public health are more likely to be Protestant and less likely to be Jewish. Students who are relatively friendly to public health are also more likely to say that religion is extremely or very important in their lives.

Table 4 examines data relating to general college and medical school experience. There is a slight indication that favorably disposed students are less likely to have attended large universities. They are also less likely to have taken a straight premedical curriculum as undergraduates, thus suggesting the possibility that students who have presumably been more committed to medicine as undergraduates are less likely to show a disposition to enter public health.

We also find certain differences among students after they have entered medical

Table 3—Background Characteristics by Disposition to Enter Public Health

	Disposition to Enter Public Health		
	Favorable (554) Per cent	Intermediate (1,382) Per cent	Unfavorable (721) Per cent
Father's income			
Under $ 4,999	32	27	21
$ 5,000–$ 7,499	27	28	24
$ 7,500–$14,999	27	28	31
$15,000 and over	12	14	19
Father's occupation			
Proprietors and managers	29	32	33
Medicine	9	10	13
Other professions	21	18	17
All others	41	40	37
Proportion definitely expecting help from family in establishing practice	19	23	31
Proportion reporting no debts	50	52	60
Religion			
Protestant	45	44	40
Catholic	16	18	15
Jewish	25	30	32
Other and none	14	8	13
Importance of religion to student			
Extremely or very important	39	35	30
Fairly important	31	34	31
Little or none	30	29	38

Table 4—Educational Experiences by Disposition to Enter Public Health

	Disposition to Enter Public Health		
	Favorable (554) Per cent	Intermediate (1,382) Per cent	Unfavorable (721) Per cent
Proportion who did undergraduate work at large universities	56	59	63
Undergraduate major			
Premedical	46	53	54
Biological or physical sciences	38	34	31
Other	16	13	15
Student's estimate of rank			
Upper half	65	75	75
Lower half	35	25	25
Intended field of specialization			
General practice	37	32	27
Surgery	6	14	20
Other	57	54	53

school. Students were asked to estimate their class standing by quartile ranks. Seventy-two per cent of the students placed themselves in the upper half of their respective classes. Only 65 per cent of the students who were favorably disposed toward public health ranked themselves in this way. While very few students expressed any interest in public health or preventive medicine as a specialty, those who are favorably disposed toward public health are most likely to be interested in general practice, and least likely to be interested in surgery.

A final set of differences emerges with respect to certain attitudes and values. Students were asked to choose from a list of those characteristics which they thought were indispensable to or very important features of the ideal job. Their replies are summarized in Table 5. In almost every case, students favorably disposed toward public health were less likely to have definite opinions as to the nature of the ideal job. In general they differed most from students unfavorably disposed towards public health with regard to the following values: They were considerably less interested in independence of action, in a variety of activities, or in certainty of effect. They were also less concerned with prestige within the profession, with a manageable work load, and with challenge to their capabilities. They were less concerned with serious consequences in the event of mistakes, with having a job which would require exacting analysis, cast them in the role of counselors, or provide a high income.

On the other hand, students favorably disposed toward public health were more likely to feel that the ideal job should involve a contribution to knowledge. There were no differences in their feelings with regard to warm personal relationships with patients, or the physical demands of a practice or working hours, or interest in helping people, or being able to rely on the aid of experienced persons. In view of the reluctance already noted of the favorably disposed students to select any of the alternatives, this apparent equality implies a relative preference on their part for these things. Students were also asked whether they would most like to be independent, successful,

Table 5—Selected Values and Attitudes by Disposition to Enter Public Health

	Disposition to Enter Public Health		
	Favorable (554) Per cent	Intermediate (1,382) Per cent	Unfavorable (721) Per cent
Characteristics of the ideal job (proportion answering indispensable or extremely important)			
Having the chance to help people.	68	70	72
Having the chance to increase continually my understanding of basic processes.	63	61	62
Developing warm personal relationships with patients.	57	56	60
Being virtually certain that my specific medical actions will lead to the desired results.	44	52	58
Having the greatest scope possible for independent action.	40	52	61
Being looked up to as a counselor by my patients.	37	40	46
Having to use a very high level of abilities and skills.	36	42	50
Being in a position to make a contribution to knowledge.	33	31	29
Engaging in a wide range of activities.	32	31	41
Having no serious consequences resulting from mistakes.	30	43	37
Having prestige among my colleagues in the medical profession.	28	36	40
Being able to rely on the aid of other experienced persons.	28	29	30
Dealing with problems which require exacting analysis.	24	24	29
Being able to simplify my work to a degree which is easily manageable.	19	19	24
Having a practice which is not exceedingly demanding physically.	15	14	19
Reaching a yearly income of at least $15,000 ten years after leaving medical school.	13	20	33
Having working hours which are not extremely long.	10	9	11
Would rather be:			
Independent	29	28	21
Successful	41	46	46
Popular	29	24	23

Table 6

Seven most frequently mentioned characteristics of students intending to work in public helath as seen by those students who are not at all interested in entering the field themselves

Compared to me, people who intend to work in public health are: (proportion choosing each statement)	Per cent
Less independent	76
More interested in social service	74
Less interested in money	70
Less creative	65
More timid	64
Less ambitious	59
Work less hard	59

or popular. While the largest proportion of all students chose success most often, students favorably disposed toward public health were least likely to do so.

Having examined differences among students with regard to certain values and attitudes, it is instructive to compare this with the stereotype of the public health physician among medical students. Those students who gave a negative answer to the question, "Are you at all interested in working in public health?" were asked to compare students who were interested in public health to themselves with respect to ten attributes. It should thus be noted that we are dealing with a stereotype as drawn by a group of students which excludes those students with any interest in public health careers. This is nevertheless an 80 per cent majority of the sample. Table 6 shows the five most frequent choices among the 20 categories. Students interested in public health are characterized as being less independent, more interested in social service, less interested in money, less creative, and less ambitious.

In four of these characteristics where comparison is possible, the stereotype is quite congruent with the values actually held by those students who are favorably disposed toward public health.

Discussion

We can now return to the questions which we posed in the beginning. Let us take the first: "What are the attitudes of medical students toward a career in public health?" If by this question we mean a full-time career, a major commitment to specialization to public health, our data show that their attitudes are extremely negative. A substantial minority of the students, however, is interested in doing some work in public health, but as part of a different career. We shall therefore modify our second question and not talk about the characteristics of medical students who want to specialize in public health—a virtually nonexistent category—but about those who are interested in public health and who say they might make it part of their work as physicians.

The general picture which we get from this group is that they are less clear in their thinking than other medical students about their future as physicians. This apparently is the impression which they give to other students, who characterize them as less ambitious, less independent and less creative, and we have seen that this stereotype represents approximately the picture these students give of themselves. More than in the choice of specific values, they show their undecided attitude by the fact that they find fewer features of an ideal job which are important to them. To this we may add that they were less likely to have been premedical students in college and are more likely to feel insecure about their standing in medical school.

The background of these students gives some clues as to the reasons for their orientation. They have less financial backing for making plans for establishing themselves as physicians. They are more likely to come from profes-

sional families where the emphasis tends more toward finding a satisfactory occupation than from businessmen's families with the model of a financially rewarding career. Among the professionals the physicians' children form an exception: they have had a clear model of a physician's career at home. They may also have absorbed the estimate of physicians in general of the relative desirability of different fields in medicine. Further, the stronger religious convictions of the students interested in public health may indicate that the general idea of service is more likely to play an important role in their motivations.

We are thus left with a rather bleak picture. Very few medical students show any inclination to enter full-time public health work. There are, however, two rays of hope. The first is that there is a group of medical students who manifest some interest in public health and, although it is beyond the scope of the present discussion to explore this, there are ways in which this interest might be nurtured and exploited. The second ray of hope stems from the fact that medical students' concurrent choices of careers are quite frequently not their ultimate choices,* and from the additional fact that public health physicians are usually late in making their final career commitments.† Further studies will explore factors at work among graduate physicians to motivate them toward or away from public health.

* Kandel, B. K.; Glaser, W. A.; and Emery, J. Changes in Career Expectations of Medical Students. Unpublished; presented at the 53rd Annual Meeting of the American Sociological Society, Seattle, Wash., August 28, 1958.

† Rosenfeld, L. S., and Altenderfer, M. E. Physicians in Public Health. Pub. Health Rep. 70:384–392 (Apr.), 1955.

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This paper was presented before the Health Officers Section of the American Public Health Association at the Eighty-Sixth Annual Meeting in St. Louis, Mo., October 27, 1958.

Better Medical Care

The Ninth Annual Group Health Institute will be held May 26-28 at the Hotel Biltmore in New York City. It will consist of a conference on the theme, "Better Medical Care for the American People," planned jointly by the Group Health Federation of America and the American Labor Health Association. Chairman of the program is David Barr, M.D., president and medical director, Health Insurance Plan of Greater New York. Among the speakers will be Leonard W. Larson, chairman, Board of Trustees, American Medical Association. He will indicate some ways in which organized medicine can help control the quality of medical care.

Senator Hubert H. Humphrey will address the first luncheon on Medical and Hospital Care for those over 65, with Eleanor Roosevelt chairing the session. At the final banquet, Howard A. Rusk, M.D., will be master of ceremonies. Major General Paul R. Hawley, M.D., will discuss "Quality as Well as Quantity of Medical Care."

Complete information and program from Group Health Institute, 625 Madison Ave., New York 22, N. Y.

Occupational health has not received as much attention from local health officers as it deserves. What can the health officer do and how can he do it? This is the burden of the following presentation.

THE LOCAL HEALTH OFFICER IN OCCUPATIONAL HEALTH

Harold J. Magnuson, M.D., M.P.H., F.A.P.H.A.

THE OVEREXTENDED local health officer is likely to view with dark suspicion anyone who suggests program areas that require additional emphasis. Spreading himself and his limited staff over a broad front, he often has little time or inclination to think beyond the traditional health activities which constitute the core of his program. One of the fields frequently overlooked—which is our concern today—is that of occupational health. Paradoxically, this activity, which at first glance appears to call for additional dilution of staff activities, may be one of the most effective for multiplying the resources and opportunities of the health department in bringing services to the people.

To alert the health officer to the opportunities presented by occupational health we proposed to develop some practicable yardsticks to enable him to measure the strengths and weaknesses in his own situation. We hoped that such parameters would enable him to appraise the situation and to estimate staffing and budget requirements. Several occupational health programs operating at local levels generously participated in a project to determine the feasibility of this approach. The experiment demonstrated that local health jurisdictions can obtain certain basic information essential to the planning of occupational health activity. Because of the wide variation in reporting situations, it is impossible to present a uniform summary, but certain common parameters have emerged.

While these may serve as building blocks for local occupational health activity, they can rise only from the foundation of the health officer's personal interest. I suggest that four misconceptions account for the lack or stunting of this interest, as reflected in the extremely slow growth of local occupational health activity over the past two decades.

First, occupational health still carries a limited connotation for many people. The health officer should be reminded that occupational health encompasses more than mine, mill, and factory. It embraces all places where people work, including the farm. As the latter becomes more mechanized and as more and more toxic chemicals are employed, the agricultural aspects of occupational health assume increasing significance.

Second, occupational health activity at the local level should not be confined to the identification and control of harmful exposures in the working environment. Rather, it is concerned with the health maintenance of the employed and it views various occupational groups not as captive groups, but rather as potential action bodies needing help to solve their general health problems.

Third, industry is too often considered

separate from the community. Its workers, whether managers or employees, are taxpayers and members of the community served by the health officer. As such, they are entitled to the same consideration as other identifiable segments of the community. In far too many areas both industry and the health department suffer through failure to communicate with each other.

The fourth misconception is that an occupational health program must necessarily be a specialized and separate activity of the health department. In large communities this may be desirable, but in the smaller communities of less than 100,000, where the majority of local health departments are located, such activities may be carried out by the basic health department staff.

Speaking before this association in 1950, Dr. Herbert Abrams, former chief of the Bureau of Adult Health, California State Department of Health, well expressed the challenge to the local health officer:

> The California Department of Public Health believes that industrial health, like the other elements of public health, should be administered on the local level as far as practicable. Its Bureau of Adult Health promulgates the concept that a substantial part of industrial health service can be handled by extension of existing health services into the factory and field. The factory should receive a proportionate share of attention, as, for example, the school now does.*

Occupational Health Self-Appraisal

To explore the practicability and desirability of extending his department's services to the employed population, the local health officer must be prepared to answer some fundamental questions.

First, what is the general health status of workers in his community? Information of this type may not be readily available for most health jurisdictions. If a specific determination cannot be made, experience from other areas may be helpful. For example, the recent California health survey showed that:

For every 100 workers about 1,220 days of disability because of illness are experienced annually, or over 12 days per worker per year.

For every 100 workers there are 526 illnesses annually and 121 of them are disabling.

For every 100 workers there are about 62 accidents annually, and 28 of these occur at work. Of these 62 accidents, 13 are disabling.

For every 100 "blue collar" workers, there are about 68 accidents annually, about 40 of which occur at work. It is interesting to note that, although the average blue collar worker spends about one-fourth of his total time at work, almost two-thirds of his accidents occur at work.

Second, what are some of the specific occupational health problems in the area? Here, too, the health officer can be guided to a degree by the types of hazards reported by the departments with established programs. As a beginning, he should look for dermatitis-producing substances, toxicity due to solvents and other chemicals used in the factory, farm, and even the home. Look for hazards due to carbon monoxide, lead fumes and dust, silica dust, and noise.

Third, what are the characteristics of the labor force? What is its size? How many in it are women? What are the age and racial distributions? The employed group may be expected to amount to one-third or more of the population. Information of this type may be available from such sources as the publications of the U. S. Bureau of Census, the state office of employment security or economic resources, and the local chamber of commerce.

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* Abrams, H. K. How Good Is the Industrial Hygiene Program? A Challenge to the Local Health Department. A.J.P.H. 40:1225–1231 (Oct.), 1950.

As a corollary to this information, one wants to know the types of industry in which the workers are found. Each community may expect to have its share of food processing, clothing, printing, chemical, stone-cutting and crushing plants, foundries, machine shops, auto repair shops, dry cleaning shops, and a variety of repair services. These are likely to be small plants with numerous and varied potential health and accident problems. The accident frequency in the small plant is generally two and a half times higher than that in the large plants, and it is not unlikely that occupational diseases show a similar trend.

If the community is larger than 250,000, larger industries will be found. Even in this larger plant group, however, the health officer cannot assume that all is well. Less than 1 per cent will be of a size that can afford to have their own medical departments and fewer still will have industrial hygiene services of their own or through their parent company.

An influx of new industries will be reflected in new potential health problems and opportunities. By making his services known as early as possible the health officer can help to develop an excellent working relationship with management and the workers. At the very outset he can render an extremely valuable service by pointing to the need of industrial hygiene controls in the blueprint stage of the plant. Frequently, the state health department may be called upon for such specialized assistance.

A fourth essential in delineating the local occupational health problem is information on occupational disease incidence. Here, the health officer will find himself handicapped by the general lack of reporting of occupational diseases. Nonetheless, he should explore the situation in his state and jurisdiction. As a first step, he should determine the existence of any laws or regulations requiring the reporting of occupational diseases by physicians. If reporting is required and the reports are sent to the state department of health, the local health officer should make arrangements to be notified of the reports originating in his jurisdiction. Arrangements of this type have been made by several cities, among them Detroit and Cleveland.

In California the Bureau of Adult Health receives all doctors' first reports of occupational disease made to the Department of Industrial Relations. These reports, totaling about 25,000 per year, are analyzed by counties. In addition, local health departments routinely receive a list of the most important diseases reported in their jurisdictions and are asked to participate in follow-up investigations.

The local health officer can do much to encourage physicians in industry and in private practice, hospitals, and clinics to comply with any occupational disease reporting laws in effect. He can, through the local medical society, encourage the reporting of diseases by offering assistance in the epidemiologic investigation that may be required. Local programs frequently can be more effective than state programs in stimulating occupational disease reporting.

Other sources of information are available. Complaints received by the department from workers and persons living in the vicinity of the plant may point to situations requiring correction. They also serve as an entree into the plant to determine whether other conditions need attention and to advise the plant where help can be obtained.

Integration of Occupational Health

Once having recognized the importance of extending health services to the employed population, the health officer must next determine the resources that are available.

First, he must turn to his own depart-

ment. He, himself, must assume the leadership role. There can be no substitute for personal effort on his part—through visits to industries and attendance and participation in business, trade, and union meetings—to build a good working relationship with management and labor. Close cooperation with the local medical groups is necessary in all health department operations. In occupational health this relationship assumes new importance because of the sensitive economic and legal factors. The effective occupational health orientation of his own staff depends upon the health officer's concept of how the program can best be integrated with other activities; his vision of the opportunity it offers for the furtherance of disease control, health education, nutrition, and other core programs through utilization of industrial grouping of adults; and the opportunities for training that he makes available to his staff. A growing number of local health departments are finding that with a minimum of training the basic personnel can extend their services to places of employment.

Total local health department personnel, employed in 1,385 units as of December, 1955, numbered 38,383. Of these, 34 per cent were public health nurses; 1 per cent, sanitary engineers; 11 per cent, professional sanitarians; and 4 per cent, public health physicians. It is evident that the nurses and the sanitarians offer the greatest numerical potential for extending services to industry.

The nurses are in a particularly effective position to do so. The recent census of industrial nurses conducted by the Public Health Service estimated that industry now employs 16,200. Effective liaison with this large group can make far more efficient the utilization of both industrial and community health resources. What is the reaction of industry and of the health department nurse?

Heide Henriksen of the Minnesota Department of Health described it this way at the 18th annual meeting of the American Conference of Governmental Industrial Hygienists.

> In our experience, public health nursing services have been well accepted by both management and the workers. We have been making small plant visits since 1951 and have yet to receive our first rebuff. . . .
>
> Staff nurses never gave the impression of having another activity added to an overloaded program but accepted it as an opportunity to do something in the adult health field.

The public health nurse can work with employee groups in various ways. High up on the list of her potential activities are routine visits to industry, especially those with plant nurses, to familiarize them with community health services. Other types of assistance run the gamut from the follow up of infectious disease cases to the demonstration of the values of small plant part-time nursing services in those plants not now having such service.

What can the sanitarian contribute? Many of the environmental factors encountered in the plant are the same as those found elsewhere. Thus, the sanitarian can serve industry by inspection of plant cafeterias, sanitary facilities, and general housekeeping, and by assisting with problems of industrial waste, cross-connections, and water supply. But he can do more than that. By assuring that washing facilities are adequate and that they are used, he can help reduce the incidence of occupational dermatitis, which accounts for more than half of the reported occupational diseases. With some training, such as California has been offering its sanitarians, he can locate trouble spots for action by specialists, follow up on compliance with their recommendations, and assist in plant surveys of environmental conditions and of health programs in industry.

In extending his department's services to industry, the local health officer will

encounter situations requiring specialized help. Where can he get it?

In all but nine states, state occupational health programs, generally found in the health department, are available to assist in defining or controlling an occupational health hazard, an industry-related community health problem, or, in some cases, in assisting industry in the establishment of employee health programs. Supportive laboratory service is also available to him from the state agency.

In carrying on a limited occupational health activity the local health officer need not concern himself with the purchase of specialized equipment. Usually, state programs are equipped to lend him such equipment as carbon monoxide indicators, radiation monitoring equipment, and temperature and humidity recorders. These instruments can be used in a satisfactory manner by local personnel after some training.

Training of sanitarians or other personnel in simple industrial hygiene procedures and in spotting problems for referral to the state or other agency is also generally available from the state health department.

At times, assistance may be obtained from other local departments within the state. In 14 states one or more local departments have active specialized programs.

The list of other resources is too long for this paper. They include insurance carriers, voluntary agencies, professional associations, universities, and private consultants.

Through these few illustrations of how the local health officer can evaluate and meet occupational health problems in his jurisdiction, we have endeavored only to show that service to industry is a logical and profitable extension of community health programs. More detailed information will be found in a kit available to interested public health personnel without charge from the Occupational Health Program, Public Health Service, U. S. Department of Health, Education, and Welfare, Washington, D. C. This kit includes the occupational health self-appraisal form, from which we drew a few illustrations. In it will also be found a detailed guide for occupational health services in local health departments prepared by the Bureau of Adult Health of the California State Department of Health and the California Conference of Local Health Officers. Also included is a comprehensive outline prepared by the Occupational Health Section of the Oregon State Board of Health, giving specific examples of how involvement of industry and its employees can strengthen the local health department program and vice versa, together with several statements describing the role of various local health department personnel in occupational health.

Challenge to the Local Health Officer

The total health problems of the working third of our nation will continue to require resources from many fronts. It would be folly to suggest that the local health department can or should solve them all. Rather, it is our belief that the health officer cannot shirk his moral and legal responsibilities to know what the problems are and to stimulate action that will lead to their solution as expeditiously as possible through the optimum use of the health resources available to his community.

We have suggested certain parameters that will assist in the measuring function. We have suggested certain areas where the facilities of the health department may represent the optimum community health resource. There are other areas where the local health department is not the optimum resource and the health officer will do his job best to the degree that he stimulates the use of more effective resources.

If the health officer by reason of ti-

midity, by inaction, or by preoccupation with other problems, neglects the occupational health problems of his community, he may expect to reap a harvest of health problems that become more difficult of solution. These he will have to face without the assistance of management and labor that was available during the working and productive years of the employee.

Prevention through group action has been the forte of the health department and the health officer. The entire community needs the benefit of that know-how—let the experts in the community speak up.

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This paper was presented before a Joint Session of the Health Officers and Occupational Health Sections of the American Public Health Association at the Eighty-Sixth Annual Meeting in St. Louis, Mo., October 30, 1958.

Community Action Against Polio

The National Health Council has taken the leadership in stimulating community action to complete the antipolio vaccination of the entire population of the United States under 40 years of age. At the request of the Public Health Service, in collaboration with the American Medical Association and the National Foundation, the council in late February convened representatives of national health, welfare, and civic organizations.

Following the meeting the council sent to its 65-member agencies and others a letter urging "cooperation in an urgent drive to prevent threatened polio epidemics in 1959." Included are a fact sheet and suggestions for community action which is being supplemented by an intensive campaign by the Advertising Council during the three months of March-May.

As a part of this total effort the Public Health Service has prepared a how-to-do-it document that has been sent to state health officers and offering it also for local use when requested. The National Foundation is alerting its state chapters. The American Medical Association has provided its state and local societies with a kit of materials. The American Academy of Pediatrics and the American Osteopathic Association are each making special efforts to stimulate their membership to share in the community action needed to complete the job of eradicating polio as a public health problem in this country.

Agriculture is today an industry. The farmer must be considered a worker in industry with individual problems of occupational health. That is the theme of this article, which offers proposals for action.

AGRICULTURAL INDUSTRY—THE CHANGING PATTERN

Clyde M. Berry, Ph.D., F.A.P.H.A.

IT IS ACKNOWLEDGED that the segment of our population employed in industry has health and safety problems that merit special and separate attention. In the name of industrial hygiene, occupational health, adult health, or environmental health one finds federal, state, municipal, and county agencies recognizing their responsibilities for this group. Economics, legislation, and pressure from organized labor have encouraged a counterpart interest within industry itself. Services for employees may come from a company's own program, insurance carrier, or may be purchased as needed from a consultant. Academic and inservice training programs exist for supplying suitably prepared medical and paramedical specialists.

Labor Departments have concerned themselves for decades with the toll that accidents exact in industry. Loss of life, temporary and permanent disabilities, wage losses, and the comfort of an industrial workplace have been of justifiable concern. In several states the occupational health concerns fall within the purview of Labor Departments.

In the American Public Health Association an Industrial Hygiene Section was formed in 1914. Wider concepts brought the Section a new name in 1954—the Occupational Health Section.

The health and safety hazards of the industrially employed are thus acknowledged. Programs of research to detect, evaluate, and control these hazards have been developed.

But what of the farmer? He is one of approximately five million so engaged. By fiat and tradition he receives few of the special health benefits of the industrial worker. Labor departments say that he is of no concern to them. Departments of agriculture have far more people engaged in attempting to improve farm productivity than to improve the health status of the farmer himself. These five million farmers represent the largest single occupational group in the United States. They have the third highest accident rate.[1] More farmers are killed on the job than any other group. Many state occupational disease laws specifically exclude farming.

The Farming Tradition

It is not difficult to construct a plausible account of why so little attention has been given to the health and safety problems that arise from and are peculiar to farming operations. It is not unreasonable to assume that the following are among the factors involved:

1. Farmers are a diffuse population. The geographical distribution of such a group makes it difficult to provide at-the-site appraisal and control of occupational health and safety problems.

2. A man's home is his castle. This concept is inherently respected in Amer-

ica. In farming the concept of home extends to the workplace and cannot be violated without due process of law. Unless help is solicited, the premises are inviolate.

3. An operational dichotomy exists. The farmer and his family are both management and labor. As management they make a decision to execute a work project. As labor the same individuals perform the work.

4. Farming is a complex activity. It varies geographically and seasonally. Tasks vary from day to day and from hour to hour. Tremendous variations occur from farm to farm in individual skills, equipment, and the health status of the family unit.

5. Data on farm health and safety are inadequate. There is a paucity of information on the variety and severity of farm health problems. In the field of accident statistics hazard potential and performance are appraised on the basis of frequency and severity rates. Who has records on the number of man-hours a farmer works per year? Who knows how many days of work he loses because of illness or accident, occupational in nature?

6. The farm is a family work unit. Any able-bodied member can freely engage in uncontrolled work activity.

7. Farming is the good life. Adequate food, clothing and shelter, fresh air, healthful exercise, and the joys of an intact family working together have been extolled by poets. What more could be asked of life? To exist so close to the joys and bounties of nature is the ultimate in physical and spiritual fulfillment. (And, of course, there are no problems in Utopian living.)

The Agricultural Revolution

Slowly the older pattern of farming has been giving ground. A higher standard of living, improved communications, and changing farm technics have inevitably brought changes. Good roads, autos, television, radio, and telephone mean that the farmer is no longer isolated from the things he wants. Diffuseness is not his problem; it is the problem of those who might provide him with the services that he is not actively seeking. Although his farm is his castle it is a regular stop for milk, bread, and paper deliveries. His feed salesman calls regularly. He leases his land for hunting, and his yard is well sprinkled with city cars during the shooting season.

Although he continues to be both management and labor, plenty of outside advice is available. He can get it from the extension agent or a farmers' cooperative, from a feed salesman or a farm journal, from a radio commercial or a TV educational program. He can emphasize management and hire someone else to do much of the labor—to grind and mix the feed, to custom spray insecticides on his crops, and to overhaul his tractor. This is specialization. It extends to a diversity of operations. If he is not a dairy farmer, he buys his milk. He may have no chickens. He may not even raise the feed for the cows and hogs he feeds. Or, conversely, he may raise the feed but have no animals —and spend the winter in Florida.

The assignments to members of the work unit are changing. From his tractor seat he can handle all the controls necessary for picking and shelling corn in the same operation—and unload it mechanically to storage. The consolidated school and extracurricular activities are doing much to solve the child labor aspect, Monday through Friday, September through May. The farmer buys a larger piece of machinery, a specialized attachment, or a new item from the burgeoning selections he can make in materials-handling equipment. His wife has more and more modern conveniences and more PTA meetings to attend. Frozen lockers in town and larger freezers on the farm de-emphasize

the canning that was once so important. Her emancipation is not only from farm work—it is from housework as well.

Family attitudes toward farming are shifting. From a way of life it becomes a way of making a living—to pay for the machinery and household conveniences, to raise the standard of living, and to educate the children. All children but one are expected to leave the home farm and find their life's fulfillment in some other capacity. This is understood, and the one chosen to succeed the father may enter into an early, formal partnership. Eventually, management shifts to the son and the father moves to a nearby village or to a more desirable climate and thereby adds another digit to our mounting geriatric problem.

The Agricultural Industry

1. Agriculture is now a form of manufacturing. Working with nature, the farmer starts with raw materials and produces a marketable product. He may engage in successive finishing steps to a final consumer product.

His capital outlay is considerable and is increasing. It may be several hundred thousand dollars. Unless he inherits the farm he will have all of the financial problems of the small business man. No longer can he think of being content with a good living, with something left over. He thinks in terms of return on investment, costs of production per unit of salable product, of the relative costs of muscle power vs. horsepower, and of the long-term risks over which he has no control, such as weather and market price.

If his margin of profit per unit is not sufficient, he may seek a more profitable crop, raise more units at the same profit per item, get a part-time job off the farm, or leave the farm altogether. Each of these is happening. The sugar beet farmer has turned to another crop. The broiler farm raises thousands and thousands of birds. The man on the assembly line may be an evening and weekend farmer. That farmers are leaving the land is acknowledged. Currently it exceeds 1 per cent per year.

The farmer is becoming more alert for new ways to increase yields, reduce spoilage, or simplify work technics. He uses fertilizers, fungicides, herbicides, and insecticides to increase yields. He uses fumigants, rodenticides and physical devices, such as silos, to reduce spoilage. He seeks improved machinery that will enable him to plow, prepare a seedbed, fertilize (insecticide and fungicide added), and plant with as few gallons of gasoline consumed as possible. Tranquilizers reduce losses in shipping and make his livestock happy. They grow faster and are more tractable.

2. Marketing is becoming as important as producing. The laws of economics profoundly affect the farmer. The variety of foods he produces depends upon what has sales appeal, not upon nutritional value or his own preference. His choice of chemicals depends upon application costs and food tolerances permitted in the produce going to market. The salability of milk depends upon its being a quality product produced under established standards.

If a farmer sells peas to a cannery he plants the variety that will sell and he harvests them when the cannery indicates. He becomes acquainted with specifications, either through the purchasing requirements of his own cooperative or by experiencing the economic importance of marketing candled eggs and unblemished melons.

Transportation charges affect him—his distance from market and the shipping restrictions in effect. It is cheaper to ship range calves to the corn than to ship the corn to the calves. More edible meat can be put in a refrigerator car than in a cattle car "on the hoof." One can truly say that the packing industry is going to the hogs.

Marketing problems cause the farmer to seek to get closer to the consumer and eliminate the middle man. Vertical integration or contract farming has evolved in which the farmer supplies only the facilities. Animals, food, veterinary services are all provided—a rural equivalent of the traditional practice of "consignment."[2]

New and Improved Hazards

1. Animals—A generation ago a young couple starting to farm were given the nucleus of their herds and flocks by relatives. This inbred, static farm animal population has yielded to specialization. The farm often becomes a stopover for transient animals with all of the potentials for disease transfer from region to region. Infected range animals can be found in the feed lot, translocating the disease and passing it along to healthy animals. Turkey eggs and poults from Texas or Oregon may bring psittacosis to New Jersey or Iowa. The endemic nature of animals' diseases is thus widened.

Within a community, farm-to-farm spread is facilitated through the medium of the sale barn or the interfarm movement of machinery and over-the-road vehicles.

One wonders about the spread of disease as the excreta of a large number of animals in a feed lot are flushed down into a small watershed with a heavy rain. Does it carry leptospirosis to the next farm? Should a sewage disposal plant be required if 700 cows are to be maintained on an area of 10 acres? What are the health hazards to a village with an impounded potable water source if there is a heavy transient animal population on its watershed? What are the health potentials associated with the possible use of pond water as a potable source for the farmer and his family?

Farmers are heavy users of animal pharmaceuticals. They can be purchased over-the-counter in a hardware, drug, or grocery store. Live cholera vaccine is sold freely. Can the farmer use it safely? Will he sensitize himself to antibiotics as he uses disposable syringes or penicillin ointments in animal treatment? Will he sensitize the consumer with penicillin in milk, a sequel of mastitis treatment and failure to withhold the milk from the affected quarter for the stated 72 hours? Will he stop feeding hormones and vermifuges a suitable period of time prior to marketing?

2. Machines—Farms have always been fine places for accidents. Any "old-timer" has cut his foot with a sickle, mashed his finger in a double-tree, and caught his pants leg in a cultivator wheel. The opportunities for the present-day farmer to hurt himself are substantially improved.

Tractors are essential. Tractors are dangerous. In a Pennsylvania study reported by the National Safety Council it was found that tractors accounted for only 14 per cent of the injury accidents but were involved in 38 per cent of the fatal accidents. The tricycle type was more dangerous than the four-wheel type.[1] When questioning design, one could ask if fenders are desirable? Should a power take-off be guarded? Is the seat comfortable and properly positioned, or is it the traditional unpadded steel platform which supports a portion of the body in a way that is necessary if the operator is to use both feet at the same time for operating controls? Can one mount to the driver's position easily? Where does one stand when sitting is no longer physically possible—on the axle?

A child cannot drive a truck on the highway without a license, but he can drive the truck anywhere within the confines of the farm. He cannot drive the family car on the highway, but he can drive the tractor anywhere.

Power transfer units invite the operator to leave part of himself behind. There

are unguarded drive shafts, whirling universal joints, open gear drives, and unshielded V-belts. Spur gears mesh invitingly close to adjustment or lubrication points. There are rollers, cams, flywheels, and connecting rods in locations where they may be brushed against, stepped on, or fallen into. Auger conveyors, bucket elevators, and compound pulley systems await the hapless and unwary to take their pound of flesh—literally.

If his equipment breaks, clogs, or needs adjustment, it will be the farmer who fixes it. If guards are in place, they are removed. If they are difficult to replace, or must be removed often, they are left off. Repair improvisations are regularly done. Makeshift and improper tools are employed. Time is of the essence so that haste and exasperation accentuate the safety hazards. Patched, frayed, and torn clothing add to the danger.

3. Chemicals—A growing list of chemical servants invite the farmer to improve his yield and the appearance or quality of his product. They can save him time and save him money. He finds use for fertilizers, germination accelerators, and mold inhibitors. He can selectively kill broad-leafed weeds or parallel-veined weeds. He can defoliate his crop to simplify harvesting. He can stop plant growth at any particular stage. He can sterilize the soil so that nothing grows.

Insecticides and fertilizers come in endless formulations. They are used singly and together.[3] Plants and animals are dipped, sprayed, and dusted. Chemicals safeguard his crop before planting, during germination, and while growing. This must continue through storage. A cow is artificially inseminated and, after calving, is milked by machine. The calf is promptly dosed with antibiotics to get off to a good start in life and successively treated with vermifuges, insecticides, and growth hormones. Lack of reports in the medical literature of illness from farm chemicals may be misleading.[4,5]

4. Physical Factors—In addition to the physiological effects of extremes of temperature there are, undoubtedly, accident-contributing concomitants to be found in the fingers numbed by cold, vision impaired by perspiration and dust, distractions from insect bites and airborne irritants, and reduced mobility from sitting in one position for a long period of time.

In the busy season there are long hours of work, not enough sleep, failure to take rest periods, and a dubious state of nutrition. Prolonged exposures to high noise levels occur and the doubter is invited to check the decibel level at the tractor seat. Too much of the health-giving sunlight may be responsible for an increased incidence of skin cancer.

Dust concentrations may be high and their nuisance value is pronounced. Molds and bacteria capable of causing disease may be inhaled. Allergenic responses may develop.

5. Human Factors—No medical or personnel department serves the farmer. He receives no preplacement or periodic physical examination. He takes no battery of tests to determine his mental and emotional limitations. The proportion of farmers who have attended college is small. His training is of an inservice type, learned from his father, his neighbors, and the vocational-agriculture teacher in high school. His formal instruction on a new piece of machinery is usually just sufficient to drive it home. Rarely does he put it into operation without much trial and error, adjusting and readjusting.

A sign on his planter warns against the dangers of insecticides and urges that he follow the precautions of the manufacturer. The insecticide label warns against breathing the dust. No retail outlet for respirators exists in his community. Prompt washing is urged

if skin contamination occurs. There are no showers in the south forty.

His medical resources are limited.[6] There may not be a rural physician in the community. A hospital may be miles away. Health and accident insurance may not be available or may be prohibitive in cost. A local health department, if one existed, would not be likely to provide services in the area of occupational health and safety.

In the absence of competent health and safety facilities the farmer must rely on his own knowledge and judgment. These may be inept. He may not seek medical attention at all. The medical literature affords little evidence of difficulty in the normal use of farm chemicals. Over half of the farmers of a small group investigated in Iowa[5] were affected at some time or other. Over three-fourths of the group knew of someone who had been made ill. Yet none of those affected visited a physician.

The Occupational Health Problem

Transition to industry status partially describes the farming operations of today. As agriculture departs from the traditional there are new occupational health and safety problems emerging that call for new, changed, or expanded approaches to meet them. The following points are suggested for consideration:

1. There is a need for more research to detect and define the problems. Very few sound data are available that identify and quantitatively establish the relative significance of farm health and safety problems.

2. Existing occupational health programs should be expanded to better serve agriculture.

3. Educational programs at youth and adult levels should be devised for instruction and demonstration of safe and healthful work patterns.

4. Medical services need to be made more available to agricultural populations.

5. Physicians need to be oriented to the unique hazards of farming and alerted to their professional potentials in providing improved prevention, diagnosis, and treatment.

6. There is a need for coordination of all medical services—physicians, hospitals, voluntary agencies, public health agencies, health and safety committees of rural organizations, schools, agricultural extension services, and any community services that may exist.

7. Manufacturers, builders, suppliers, fabricators, blenders, packagers, and others should be encouraged to cooperate among themselves and with active programs to reduce the potential hazards in the consumption of goods and services on the farm.

8. Legislative changes must be made to insure orderly, systematic, and effective progress toward adequate protection of the health of the farmer and his family in their total environment. Responsibilities must be fixed, scope of program defined, and punitive measures spelled out. This will undoubtedly come soon in governmental agencies in the health and safety field.

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Are community needs for vocational rehabilitation services being met? In this study of young adults with severe neuromuscular disorders, the answer is "no." A unified solution to the problem is offered for the community in which the study was made.

AN EVALUATION OF YOUNG ADULTS WITH SEVERE NEUROMUSCULAR DISORDERS TO DETERMINE COMMUNITY NEEDS FOR VOCATIONAL REHABILITATION SERVICES

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In New York State services for the medical rehabilitation of the child handicapped by cerebral palsy, poliomyelitis, and other neuromuscular conditions have been considered adequate in urban areas for a number of years. The larger urban centers have also developed special educational facilities for severely handicapped children. The deficiencies in community services become apparent, however, when the child is discharged from the treatment center and leaves school with no job opportunity, little or no vocational preparation, and a dismal future for both himself and his family. The investment in the medical and educational rehabilitation of these individuals is often wasted because of (1) the restricted facilities for an ongoing and productive rehabilitation program on entry into young adulthood, and (2) the failure of the community to provide enough vocational training and direction while the child is attending elementary school.

In 1956 the Council of Social Agencies of Buffalo and Erie County adopted as a major study project, the community rehabilitation services for the adult, and the Health Committee of the council appointed a Rehabilitation Committee to study the various facets of the problem and to make recommendations as how best to meet community needs. One of the areas for study related to the problem of disease-oriented sheltered workshop programs which were being considered by three voluntary health agencies, namely the Association for Help to Retarded Children, the Epilepsy Association, and the Cerebral Palsy Association. In addition, the National Foundation for Infantile Paralysis was also undertaking a review of young adults with poliomyelitis to determine their rehabilitation and vocational needs.

With little information available as to the extent of the problem for this segment of the handicapped population in Buffalo and Erie County, it was felt desirable to undertake a limited study restricted to cerebral palsy and poliomyelitis. The purpose of the study was to determine the needs of moderately or severely handicapped individuals in the age group 16-30 years who had been

discharged from treatment centers. The major areas which the three agencies wanted explored related to community needs for a work adjustment training center, sheltered workshop, homebound program, or other related services for young adults. As most of the individuals had received extensive medical care and had been discharged from treatment centers, their medical needs were arbitrarily excluded from consideration.

The following areas were included for investigation:

1. The physical status of the case based on living abilities and medical disability status as determined from medical records.
2. A gross appraisal of the patient's mental status.
3. Educational attainments.
4. Present activity in the home and community.
5. An evaluation by the examiner as to whether patient would benefit from a community organized program, such as a work tolerance shop or sheltered workshop.

Source of Cases

Agencies concerned with the treatment of cerebral palsy and poliomyelitis were asked to submit a list of patients who had neuromuscular involvement and were in the age group 16-30 years at the time of the study. Cooperating agencies included the Children's Hospital, Crippled Children's Guild, Cerebral Palsy Association, National Foundation for Infantile Paralysis, Crippled Children's School of the E. J. Meyer Memorial Hospital, and the Erie County Department of Health. Of the 214 referrals, 37 were diagnosed as poliomyelitis and 177 as cerebral palsy. It is quite obvious that the poliomyelitis group is relatively small and not in any sense a representative sample. The cerebral palsy cases include most of the more seriously involved patients known to those agencies in Buffalo who have had the major responsibility for medical rehabilitation and education of cerebral palsy children.

Method

Two public health interns of the New York State Department of Health assigned to the Erie County Department of Health devoted the summer of 1956 to these investigations. The study was continued in the following year by a social worker with funds provided by the Buffalo chapter of the National Foundation for Infantile Paralysis.

The investigators secured information from hospital or clinic records relating to the medical diagnosis, duration of treatment, status of patient at discharge, with special attention to daily living abilities, and the most recent intelligence quotient. This was followed by a visit to the home where both the patient and the parent were interviewed. Notations were made as to the present aid to daily living abilities, a gross judgment of intelligence, evaluation of speech, educational attainment, and present occupation. The interviewer was asked to make a judgment as to whether the case would benefit from a workshop or other facility and the attitude of parent and patient related to the utilization of such facilities.

Description of the Study Group

Of the 214 referrals, nine were deceased and 12 were institutionalized (Table 1). Thirty-four had moved out of the county or could not be found at the address given, and 12 either refused to be interviewed or were not contacted for other reasons. The investigators were able to contact 30 poliomyelitis and 117 cerebral palsy patients.

The study group in this paper consists of those actually interviewed by the investigators, as our major concern is the characteristics of the patients known to be living in Buffalo and Erie County, with particular reference to their vocational rehabilitation needs. The age of these 147 individuals was calculated as of July 1, 1956, with the youngest patient, age 17, and the oldest, age

Table 1—Number of Patients Interviewed, Deceased, Institutionalized, Moved or Not Contacted—Cerebral Palsy and Poliomyelitis

	Poliomyelitis	Cerebral Palsy	Total	Per cent
Interviewed	30	117	147	68
Deceased	0	9	9	4
Institutionalized	1	11	12	6
Moved out of county	5	29	34	16
Not contacted	1	11	12	6
Total	37	177	214	..

Table 2—Age Distribution of the Cerebral Palsy and Poliomyelitis Cases Interviewed and Included in the Study

Age Years	Poliomyelitis	Cerebral Palsy	Total	Per cent
16—18	8	35	43	29
19—21	4	35	39	27
22—24	11	12	23	16
25 and over	7	35	42	28
Total	30	117	147	..

31 (Table 2). There were 82 under 21 and 65 over 21. Males exceeded females in both disease entities—17 males among the 30 poliomyelitis patients and 65 males as compared with 52 females in the cerebral palsy group.

Because of the different characteristics of the two diseases and the severe multiple handicaps found in the cerebral palsy cases, the results for each disease group will be discussed separately.

Cerebral Palsy

All the cerebral palsy patients had some neuromuscular impairment and in addition many had other complications, such as mental retardation, blindness and deafness. The cases were classified as mild, moderate, or severe, largely based on neuromuscular involvement. In making this judgment the findings or medical records were taken into consideration as well as the observations of the interviewer, particularly in relation to loss of function. If function was restricted in one upper and one lower extremity, the case was classified as "severe." "Moderate" involvement was defined as restricted function in two upper or lower extremities. The "mild" case had only slight incapacity in one or more extremities. Speech disorders were excluded in the classification of the handicap. There were 57 patients with severe involvement, 43 classified as moderate, and 17 as mild (Table 3).

The diagnoses regarding limb involvement, as given by the institutions, in-

cluded 40 (34 per cent) with quadriplegia, 32 (27 per cent) hemiplegics, 23 (20 per cent) paraplegics, and 22 (19 per cent) with other involvement. The most frequent type of involvement was spasticity with 69 cases, while 25 were athetoids and eight were diagnosed as ataxics. The remainder had mixed involvement. There were at least ten cases with convulsive disorders as a complication. An important criterion for judging the extent of involvement is the ability of the patient to perform activities of daily living. Of the 117 cases, 21 (18 per cent) were confined to bed or a wheelchair; three used crutches and braces with assistance; and 11 depended on crutches or braces or both, but were able to use them without assistance (Table 4). Eight of the group with no ability to walk were unable to dress, feed, or handle their own toilet. Four others were deficient in at least two of the ADL abilities while three lacked one besides ambulation. Six with no ability to ambulate could perform all the other functions. One patient dependent on a walker, crutches, and braces for ambulation was deficient in all three of the other ADL abilities. Another patient able to walk with assistance could not handle his dressing and toilet. The extensive limitations in function of at least 15 patients would make them potential candidates for custodial care based on daily living considerations alone.

Table 3—Extent of Involvement Among Cerebral Palsy Patients According to Type of Handicap—Cerebral Palsy

	Neuromuscular Only	Neuromuscular and Mental Impairment	Neuromuscular and Mental Impairment Blindness or Deafness	Total	Per cent
Mild	10	7	0	17	14
Moderate	29	11	3	43	37
Severe	24	29	4	57	49
Total	63	47	7	117	..

Table 4—Activities of Daily Living Excluding Speech—Cerebral Palsy

Ability	Dressing	Per cent	Eating	Per cent	Toilet	Per cent	Ambulation*	Per cent
None	9	8	8	7	10	8	21	18
Partial—with help	16	14	10	9	7	6	3	2
Partial—without help	12	10	16	14	1	1	11	9
Complete	80	68	83	70	99	85	82	71
Total	117	..	117	..	117	..	117	..

* Ambulation:
None—bedridden and wheelchair cases.
Partial—with help—cases using crutches and/or braces with assistance.
Partial—without help—cases using crutches and/or braces without assistance.
Complete—ambulation without aides or assistance.

Table 5—Ability to Communicate—Cerebral Palsy

	No.	Per cent
Unable to communicate	2	2
Unintelligible	6	5
Intelligible to parents only	16	14
Intelligible but abnormal speech	66	56
Normal speech	26	22
Not ascertained	1	1
Total	117	..

Speech

Speech problems were common in the study group with only 26 (22 per cent) having normal speech; thus, 90 (77 per cent) had some abnormality (Table 5). Six were unintelligible with little ability to communicate and 16 could only be understood by their parents. This handicap is one of the most important obstacles to education as well as employment.

Mental Status

Adequate data were not available regarding the intelligence rating of the group interviewed. Intelligence tests were recorded for 58 children in hospital, clinic, and school records. Based on these findings, 23 would be considered mentally retarded with intelligence quotients below 70. There were three children between 70 and 80, 23 between 80 and 100, and nine with IQ tests over 100. There are serious limitations to these data because the last test recorded was given during the preschool and early school years in some of the cases. This is a period when accurate testing is difficult, particularly with children having severe speech disorders.

The investigators were asked to make a gross evaluation of the patient's mental ability, but the difficulties in making such a judgment during a limited interview raises a question of the reliability of such observations by inexperienced interviewers. Their evaluations of mental status were as follows:

Very dull	19
Dull	29
Average	48
Above average	9
Not ascertained	2
	117

Of the 58 patients with data as to intelligence tests, there was fair agreement between the test score and that of the examiner, although seven with scores lower than 70 were judged to have normal intelligence at time of interview.

The scholastic record of the patient was considered to be a better measure of intelligence than the gross evaluation of the interviewer or the intelligence tests available. However, there are real limitations to this data because of the practice of passing a child from grade to grade despite his actual achievement. The failure to graduate from elementary school, or attendance in secondary schools and college was felt to be the most satisfactory criteria of intellectual attainment.

At time of interview, 18 (10 per cent) were still attending school or college and 99 (90 per cent) had no schooling or had discontinued school. Of the 18 attending school, 12 were in secondary schools and six were in college or trade school. Of the 99 individuals not in school, there were five who had no schooling. A total of 60 (60 per cent) failed to graduate from elementary schools and 54 of this group has attended the special school for handicapped children (school No. 84). Fifteen of this group who failed to graduate from elementary schools were considered to have average intelligence by the inter-

viewers. Of course, these children may have dropped out for other reasons than poor performance, but this was probably the basic reason. It would appear that the interviewers tended to rate the intelligence of 25 per cent of the cases higher than would be expected judged by school achievement.

Six were graduated from elementary school and 22 (22 per cent) attended high school with 16 graduating from high school. Six of the 99 patients went on to college or trade school with two failing to be graduated.

A number of these children during their school life received schooling for varied periods of time at hospitals or convalescent institutions. A limited group attended classes for the handicapped available in the Buffalo public school system.

Employment Status

The employment status at the time of interview was very unfavorable with only 18 (18 per cent) working full time and an additional 10 (10 per cent) holding part-time jobs or doing piece work. This is exclusive of those still at school. The remainder, 71 (72 per cent), had no regular activity, although 12 of these helped around the home. Two women, managing their own homes, were included among the full-time employed group. Four were working at the sheltered workshop operated by Goodwill Industries and were considered to have full-time employment. Seven of the individuals in the study had been previously employed but were without jobs when interviewed.

A comparison of their work situation with ambulatory abilities was of interest because it was difficult to demonstrate any relationship between the two except in the group confined to bed or largely dependent on a wheelchair. Only two (11 per cent) of the 19 individuals in this category had work and this was piece work. The group dependent on braces or crutches had the largest percentage employed with five out of 12 (48 per cent) working (Table 6). Of the group of 68 able to walk without assistance, 21 (32 per cent) had some employment with 16 holding full-time jobs and five working part-time.

Present employment status appeared to be directly related to scholastic attainment in the study group. Five patients with no schooling were unemployed. Only 13 per cent of the group who failed to graduate from the special school were employed (Table 7). The elementary school graduate or those who attended high school had a greater than 50 per cent chance of employment while two-thirds of the limited number reaching college were working.

Table 6—Ambulatory Abilities of Cerebral Palsy Patients Compared with Their Activity at Time of Interview*

Activity Status	Confined to Bed	Wheelchair	Brace and/or Crutches	Without Aides	Total	Per cent
Full-time employment	0	0	2	16	18†	18
Part-time employment	0	2	3	5	10	10
No regular activity	3	14	7	47	71	72
Total	3	16	12	68	99	..

* Eighteen attending school at time of interview not included.
† Includes two women managing own homes.

Table 7—Employment Status Related to Scholastic Attainment—Cerebral Palsy

Educational Status	Full-Time Employment	Part-Time or Piece Work	No Regular Employment	Total	Per cent Working Full or Part Time
No schooling	0	0	5	5	..
Released, not graduated—special school	3	4	47	54	13
Other elementary	2	0	4	6	33
Elementary school graduated	1	2	3	6	50
High School—1 or more yrs.	9	3	10	22	54
College—1 or more yrs.	3	1	2	6	66
Total	18	10	71	99	..

Severe speech problems as well as mental retardation were obstacles to employment in the group of 71 cases with no regular activity. Twenty patients had severe speech involvement and 42 had some impairment. Normal speech was observed in nine cases.

Emotional factors also played a role in employment potential. Excessive dependency on parent and fear of leaving home was apparent in a number of cases. Three patients had spent some time in mental institutions.

Without careful medical, social, and vocational evaluation, it is difficult to define the specific needs of severely handicapped individuals as it relates to their eligibility for employment in industry, placement in a sheltered workshop, or some other program. The interviewer felt that 15 of those not employed or at school were candidates for a transitional workshop or immediate job placement. Twenty patients were so severely involved, either physically or mentally, that custodial care seemed indicated but the status quo will probably be maintained as long as the parents are able to care for them at home. At least four of this group had been institutionalized in the past, and all but three were mentally retarded. As their families are unwilling to institutionalize these patients, the alternative is to provide a terminal workshop for some of these cases and a home care or day center program for the most severely involved. The remaining patients deserve careful evaluation to determine their capabilities before placement in industry or in a transitional or a sheltered workshop program. The 18 children attending high school or college at the time of the study are also candidates for placement in industry or they may need additional training before employment. Sheltered employment may be indicated for the more severely involved students.

Treatment

Extensive treatment and medical rehabilitation services were rendered to most of these patients over a period of years. A residential care center for cerebral palsy children was maintained for several years under the direction of the Children's Hospital with financial

support from the Variety Club. Many of these children were hospitalized for long periods of time. In addition, the Crippled Children's Guild had facilities for outpatient treatment as well as residential care. In 1953 the treatment center, with the emphasis on long-term residential care, was abandoned. An outpatient treatment center evolved providing the needed therapies, medical direction, and schooling. This is now part of the program of the Rehabilitation Center for Children of the Buffalo Children's Hospital and the Crippled Children's Guild.

Buffalo is also fortunate in having a school for severely handicapped children with medical direction provided by the county hospital. Children discharged from other treatment facilities are usually transferred to the special school where physical and speech therapies are provided under medical direction. Since the physical plant is located on the grounds of a large community hospital, medical and surgical services have been made available to many of these children in the past.

Of the 117 patients studied, four received no treatment in a clinic, hospital, convalescent center, or the Crippled Children's School. Seventeen had been hospitalized for periods of less than a year, usually for orthopedic or clinical evaluation. A total of 64 received therapy in general hospitals or convalescent centers other than the special school for crippled children for periods ranging from one to 14 years. The mean period of treatment was four years. All but 28 of the 117 patients attended the Crippled Children's School for varying periods of time as follows:

Years of Schooling	No. of Patients
Less than 1 year	2
1–4 years	27
5–9 years	38
10–12 years	17
Undetermined	5
Total	89

At the time of interview, most of the patients were not under medical supervision. Six were under the care of chiropractors.

Prior to 1946 much of the care was financed privately, or if the family were indigent, expenses were assumed by the Welfare Department. In recent years state and county assistance was available through the Medical Rehabilitation Program. Review of the available records indicate that at least 48 cases received some assistance through the state and county aid programs.

Poliomyelitis Study Group

With three exceptions, the poliomyelitis patients included in the study were moderately or severely involved. The major problem was ambulation with nine dependent on wheelchairs, seven able to walk with crutches and braces but needing assistance, seven requiring braces but no assistance, and seven able to walk without aids. In addition, one patient lacked three of the aids to daily living abilities and two needed help in eating and with their toilet.

The educational status was comparable to the general population. Only one of the group attended the special school for handicapped children. A total of 23 had graduated from high school, trade school, or college and the remaining seven are still attending school. Two were graduated from college and three are presently enrolled.

Because ambulation constitutes the major disability problem in this group, it is of interest to examine their walking skills and present occupation (Table 8). Of the 23 individuals who had completed schooling, 12 were employed full time and two were managing their homes. One was working part time and two had been employed previously. Of the eight patients unemployed, two were so severely involved that a home-bound pro-

Table 8—Employment Status as Compared with Ambulatory Abilities—Poliomyelitis*

Ability to Ambulate	Full-Time Employment	Part-Time Employment	No Regular Activity	Total	Per cent Employed Full or Part Time
Wheelchair	2	1	4	7	43
Braces and/or crutches	3	0	3	6	50
Without assistance	9	0	1	10	90
Total	14	1	8	23	..

* Excludes seven patients still at school.

gram seemed indicated. The remainder needed further evaluation and were candidates for placement in industry or a workshop. At least three of this group had little or no incentive to leave the home and were very dependent on the mother. Of the group still at school, four were considered to be candidates for a workshop situation.

Discussion

The employment status of the cerebral palsied in the Buffalo and Erie County study is comparable to findings in other areas. Glick found only 42 (21 per cent) employed in a study of 200 ambulatory young adults with cerebral palsy residing in New York City.[1] The major difficulty in gaining employment was attributed to emotional adjustment. Wortis and Cooper reported only 11 (22 per cent) had full- or part-time work in a group of 49 palsied adults.[2] In the Schenectady study involving a small group of patients over 20 years of age, 62 per cent had no activity which compares with 71 per cent over 17 years of age in Erie County.[3]

One of the major difficulties has been the lack of vocational training for severely handicapped individuals, particularly with the lower skills. Moed and Klincewicz found that in a group of 110 cerebral palsied young adults in New York City, 92 per cent had not received any training despite the fact that 32 per cent had completed high school.[4] The New York State Division of Vocational Rehabilitation evaluated these individuals and reported 60 per cent had some employment potential.

The severely handicapped individual is forced to overcome a battery of obstacles to employment which are imposed upon him by the nature of his handicap as well as by the attitudes of the community in which he must compete. Unfortunately, behavior deviations are common, and Gorthy and Moed[5] indicate that emotional problems bear a direct relationship to the extent of the handicap. The emotional difficulties undoubtedly have their origin in childhood which suggests the need for closer working relationships between the school, treatment and rehabilitation services, and the home in order to better assist the family and child in their adjustment to the handicap.

Although extensive residential and outpatient treatment and rehabilitation services were provided the vast majority of the study group, the deficiencies in the services rendered became apparent when the patient attained the age of 16 or 17 and withdrew from school. The patients were unprepared for any occupation, and they were largely rejected by industry. Most of them returned

to their homes with no utilization of the muscular skills achieved through the long period of rehabilitation. This was more true of the cerebral palsy patients than those handicapped by poliomyelitis.

The existing sheltered workshop facility operated by Goodwill Industries was not prepared or able to accept most of these patients, either because of the severity of their handicap or because they would not be productive in sheltered employment. Prior to the fall of 1956 relatively few had contact with the Division of Vocational Rehabilitation of the New York State Department of Education because of eligibility requirements and limitation of funds.

However, since 1955, some of the needed services for the severely handicapped have been added to community programs in this area with a brighter future for the next generation as well as those included in this study. Briefly, these are as follows:

1. The Rehabilitation Center for Children of the Children's Hospital and the Crippled Children's Guild was established in 1956. The existing cerebral palsy program at the hospital and the Crippled Children's Guild was made part of this new center, which includes comprehensive services for other neuromuscular conditions, epilepsy, amputees, and the mentally retarded. Recently a vocational guidance counselor and a public health nurse coordinator were added to the staff at the center.

2. A cerebral palsy follow-up clinic was established at the Buffalo Children's Hospital in 1955 as a joint operation of the hospital and the Erie County Health Department. Clinical services are financed by the New York State Department of Health. This provided medical supervision for children under 21 discharged from the treatment center.

3. The Cerebral Palsy Association of Western New York established a small workshop facility for cerebral palsy cases in the fall of 1956. The Division of Vocational Rehabilitation agreed to provide funds for a complete medical, psychological, and social evaluation in local medical institutions before admission to this workshop and also that of Goodwill Industries. In addition, the Division of Vocational Rehabilitation financed job evaluations at the Cerebral Palsy Workshop.

4. The Cerebral Palsy Association and the Buffalo Association for the Blind undertook to coordinate their services in certain areas, such as arranging for job contracts with industries and interchange of clients in the workshops. Goodwill Industries has also agreed to accept selected clients for sheltered employment from the other two facilities.

5. The special school for mentally and physically handicapped children is planning to expand their services to include a vocational counselor and an occupational therapist. This will enable them to provide more vocational training in their program.

6. The Cerebral Palsy Association has reached an agreement with the Association for the Help to Retarded Children to accept retarded patients in their facilities when adequate space and personnel are available.

A substantial number of the study group have been contacted and received services from the Sheltered Workshop of the Cerebral Palsy Association since 1956. Thirty-five of the 117 patients were interviewed as of May, 1958, and ten were placed in the workshop program and three were placed in industry (Table 9). In addition, 21 are awaiting placement or medical evaluation. Of the 71 patients with no regular activity at time of interview, it is encouraging to note that 25 (35 per cent) were considered to have preemployment possibilities or were eligible for placement in a sheltered workshop. The workshop considered nine of the study group to be too seriously involved for the present staff and facilities. There had been no

Table 9—Status of 35 Patients Active with Sheltered Workshop Program of the Cerebral Palsy Association as of May, 1958, Compared with Activity at Time of Study Interview

Activity Status at Time of Study Interview	Industrial Placement	Placement Goodwill Industries	Sheltered Workshop		Total
			Active in Program	Awaiting Placement or to Be Evaluated	
Employed—full time	1	0	0	0	1
Employed—part time	0	1	0	2	3
Goodwill Industries	0	0	1	1	2
School	0	0	0	4	4
No regular activity	2	0	9	14	25
Total	3	1	10*	21†	35

* With one exception, interviewer felt subject would benefit from workshop.
† All could utilize service according to interviewer.

contact with 40 patients while the remainder were employed or were not interested in the services offered.

It is apparent that the Cerebral Palsy Association is making a valiant effort to meet community needs and to salvage some of the young adults with cerebral palsy. However, their present facility with a capacity of 14 patients, even with plans of future expansion, cannot hope to meet the demands of the present caseload or the annual increment of the future. This is particularly true when one considers the aggregate problem of other neuromuscular conditions, such as multiple sclerosis, epilepsy, poliomyelitis and the dystrophies, plus the chronic diseases of the older age groups.

After several months of study, the Rehabilitation Subcommittee studying sheltered workshop needs for the Council of Social Agencies concluded that the present services in the community were not meeting the needs of handicapped adults, nor could they be modified nor expanded to satisfy the ever-increasing number as well as the variety of handicapping conditions. The subcommittee recommended a single, professionally staffed facility under one administration to provide complete evaluations, training programs, a transitional workshop, job placement, a sheltered shop, and a day care center for disabled adults. A number of interim steps which will not be elaborated here were suggested for working toward this goal.

Summary

This study of 214 young adults crippled by poliomyelitis or cerebral palsy was undertaken to determine the present activity of these individuals and to make a rough evaluation of their needs for vocational training and placement. The vast majority of the patients had received long-term medical rehabilitation in hospitals, convalescent centers, and special schools for the handicapped.

Sixty-eight per cent of the study group were interviewed and 10 per cent were deceased or institutionalized while 22 per cent had moved out of the county or could not be located. Exclusive of those still attending school, 35 per cent

of the poliomyelitis patients and 70 per cent of the cerebral palsy patients had no employment. Obstacles to employment in the poliomyelitis group were largely due to neuromuscular involvement. The problem was more complex among the cerebral palsied with mental impairment, speech, emotional problems, and physical disabilities—all factors blocking employment. School achievement seemed to be directly related to their ability to secure work in most instances.

Adequate facilities were not available in the community to meet the vocational rehabilitation needs of the study group, although a limited sheltered workshop facility was developed recently and was providing service to approximately 25 per cent of the cerebral palsied in the study group. If the aggregate needs of other disabilities are considered, such as the dystrophies, epilepsy, and multiple sclerosis, as well as other conditions of the aging, the solution would appear to be a complete rehabilitation center for the community. This would better meet the rehabilitation needs of the disabled rather than additional disease-centered facilities.

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Canada's New Hospital Accreditation Commission

The Canadian Council on Hospital Accreditation began accrediting Canadian hospitals at the beginning of 1959. Heretofore, such accreditation was carried on by the Joint Commission on Accreditation of Hospitals whose member organizations were the American College of Physicians, American College of Surgeons, American Hospital Association, American Medical Association, and the Canadian Medical Association. The last-named has now withdrawn to join with the Canadian Hospital Association, the Royal College of Physicians and Surgeons of Canada, and the French Language Medical Association of Canada to form the new Canadian accreditation group. The new group has adopted the accreditation standards of the Joint Committee, as well as the survey procedures and report forms.

A large part of the population of the United States receives medical care on an ambulatory basis through institutional facilities. But how do the patients get to them? To study the problem of referral to clinics, the authors of this report developed a methodology which they discuss here.

A STUDY OF PATTERNS OF PATIENT REFERRAL TO A MEDICAL CLINIC IN A RURAL STATE: METHODOLOGY

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ABOUT 83 million outpatient visits are made annually to the 5,500 hospitals in the United States which provide some form of ambulatory patient care.[1] The remarkable growth and utilization of outpatient facilities since the opening of the first dispensary in 1696[2] is tangible evidence that institutional ambulatory medicine is an important element in the provision of medical care. Until recently little has been done to evaluate critically the role of outpatient departments in the over-all patterns of medical care,[3] or to devise methods for improving the availability and quality of ambulatory services.[4] Michael Davis[2] and Richard Cabot[5-7] reviewed these problems 50 years ago and today it is difficult to document significant advances toward their solution.[8-10]

Odoroff and Abbe[11] provide important ecologic data on the utilization of outpatient departments by various segments of the population, but meaningful data about the need for different types of services, the process of referral, and the quality of outpatient medical care are largely lacking. Recently, the precise nature of the expectations and attitudes of patients and physicians in outpatient departments has become the object of careful investigation.[12-15] In urban communities, where the outpatient department may act as the family physician, the process by which patients select or are referred to such a clinic is also being studied.[16]

For rural areas no data about the referral process or the role of a university clinic are available. A study designed to supply such information has been undertaken in the General Clinic of the North Carolina Memorial Hospital (NCMH) at the University of North Carolina,[17] a clinic which provides comprehensive diagnostic and consultant services for ambulatory patients referred by physicians in the eastern two-thirds of a predominantly rural state. Except in cases of emergency and occasional self-referral, patients are seen by appointment and have a thorough work-up

by a senior medical student or house officer and a staff preceptor. Each patient is usually seen at least twice in the clinic. Thereafter, treatment may be continued by the clinic and one of its subspecialty sections or the patient may be returned to his referring physician. Ultimately the care of each patient reverts to his referring physician. In contrast to many urban outpatient departments the clinic makes no attempt to provide continuing medical care for any save a few patients in two small demonstration teaching programs.

The present report describes the design of a study which attempts to answer the following questions: (1) What are the characteristics of the physicians who refer patients to a university outpatient department in a rural state? (2) What are the characteristics of the patients and their clinical problems? (3) For what reasons are referrals made? (4) Who initiates the referral: the patient, physician, or some other agency? (5) What problems are encountered in making appointments and in the arranging transportation, housing, and meals? (6) What are the physician's and the patient's expectations about the outcome of the referral? (7) What are the overall costs of the referral for the patient? (8) How effectively does the clinic communicate its information to the referring physician and patient and what is done with it?

The design of a study employing interviews to answer these questions proved a complex task; this discussion of the problems encountered may be of value to others contemplating similar studies of medical care. The results of this investigation will be the subject of future reports.

Analysis of Populations to Be Studied

The aims of this investigation made it necessary to study samples of both physician and patient populations represented in the records of the clinic. For convenience, the physician sample was made the primary one and the patient sample was based upon it.

In analyzing the physician population, three steps were necessary: (1) the definition of the limits of the geographic area to be studied; (2) the compilation of a list of all physicians in this area and information about the number of patients each referred to the clinic in a specified reference period of time; and (3) stratification of the physician population according to the variables which might affect significantly the patterns of referral.

With the needs of this study in mind, complete records of referrals to the clinic, classified according to the individual physicians or agencies responsible, were kept from January, 1956. A full year's experience was available for use in early 1957. Clinic records and other sources (see Appendix) furnished the data for a table indicating for each county the total number of practicing physicians, the number of agencies referring patients to the clinic, and the number of patients from each source. From this table a map (Figure 1) was prepared showing by counties the percentage of physicians referring patients to the General Clinic in 1956. With this information the study area was defined as that portion of the state to the east of the heavy line shown on the map. The relative rates of referral from the two geographic areas are shown in Table 1. The western area included 41 per cent of the population of the state and 45 per cent of the physicians but furnished only 6.3 per cent of the patients referred to the General Clinic and included only 8.2 per cent of the physicians making such referrals.

The following categories of physicians were excluded from the study: physicians not in active practice, interns and residents, physicians in government service, physicians on the staffs of state hos-

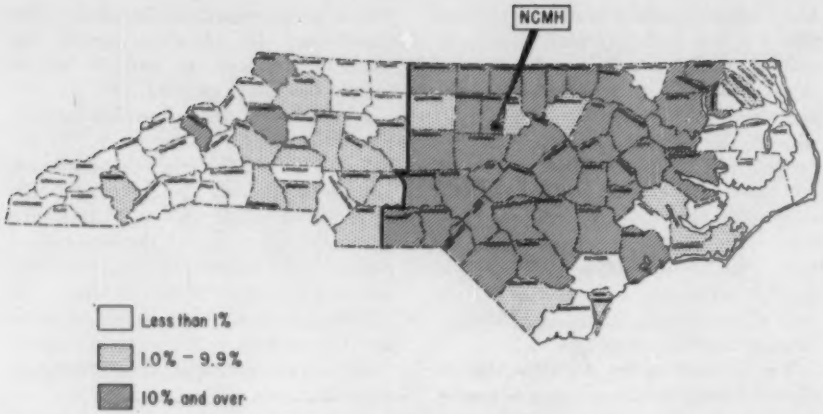

Figure 1—Per cent of Physicians Referring Patients to NCMH General Clinic in 1956—by Counties

pitals for tuberculosis and mental illness, physicians on medical school faculties, physicians for whom adequate data were lacking, and 14 physicians interviewed during the pretest period. This left a total of 1,491 physicians in the base population.

The variables which were considered most likely to affect the physicians' referral patterns were: distance from North Carolina Memorial Hospital, type of practice, size of local community, age, race, and prior association with the University of North Carolina. Data on these points for each physician were obtained from several sources (see Appendix).

Table 2 shows the frequency distribution of physicians in the study area according to the number of referrals in 1956. On this basis, physicians were divided into three groups: (1) those who referred no patients; (2) those who referred one or two; and (3) those who referred three or more. Subsequent tab-

Table 1—Number of Referrers and Number of Patients in NCMH General Clinic in 1956 by Type of Referrer and Area of State

Type of Referrer	Study Area		Western Area		Entire State	
	Referrers	Patients	Referrers	Patients	Referrers	Patients
Physician	337	823	30	40	367	863
Public Welfare Dept.	24	113	5	15	29	128
Vocational Rehabilitation	14	52	4	22	18	74
Health Department	15	23	0	0	15	23
Self	...	129	..	6	...	135
Within NCMH	...	117	..	2	...	119
Miscellaneous	8	12	0	0	8	12
Unknown	...	2	..	0	...	2
Total	398	1,271	39	85	437	1,356

Table 2—Number and Per cent of Physicians in Study Area by Number of Referrals to NCMH General Clinic in 1956

Number of Referrals	Number of Physicians	Per cent of Physicians
0	1,188	79.7
1	161	10.8
2	58	3.9
3	28	1.9
4	19	1.3
5	13	0.9
6	3	0.2
7	4	0.3
8	1	0.1
9	3	0.2
10	3	0.2
Over 10	10	0.7
Total	1,491	100.2

ulations were made with the number of referrals as shown in these three groups representing the dependent variable.

Analysis of the data led to the following decisions: (1) Certain specialists were eliminated from the base population because their practices were not the types from which it was expected patients would be referred to the clinic. These included radiologists, pathologists, and dermatologists who had referred very few patients to the clinic. This reduced the base population to 1,365 physicians. (2) Type of practice was considered in two dimensions only, that is, general practitioner and specialist. (3) Age was considered in three groups: less than 40, 40-59, and 60 years and over. (4) Because of the small number of Negro physicians (112) they were stratified on the basis of age and number of referrals only. (5) Size of town was stratified in two groups: less than 25,000 and over 25,000 population. (6) Distance from North Carolina Memorial Hospital was stratified in three groups: less than 25 miles, 25-99 miles, and 100 miles or more. (7) The medical school attended by the physician and whether he had attended the University of North Carolina showed no discernible effect on the patterns of referral in 1956. Therefore stratification on these bases was not indicated. The final stratification comprises 117 cells (Table 3).

Selection and Modification of Physician Sample

In selecting a sample of physicians it was decided to take one-twentieth of the nonreferrers, one-third of the physicians referring one or two patients, and one-third of the physicians referring three or more. Sampling was done by cells and

Table 3—Final Stratification of Physicians in Base Population (1956)

No. of Referrals	Age	White General Practitioners						White Specialists						Negroes	Totals
		Pop. Under 25,000			Pop. Over 25,000			Pop. Under 25,000			Pop. Over 25,000				
		<25 Mi	25-99	100+	<25 Mi	25-99	100+	<25 Mi	25-99	100+	<25 Mi	25-99	100+		
0	<40	2	74	55	6	22	1	1	35	27	4	43	14	19	1,068
	40-59	2	66	58	5	16	1	—	80	62	11	113	20	33	
	60+	2	67	51	1	24	3	1	36	20	8	41	9	35	
1 or 2	<40	1	30	12	—	2	—	—	5	5	1	8	1	5	213
	40-59	5	31	13	—	7	1	—	22	13	1	9	1	10	
	60+	—	13	1	—	—	—	1	8	1	1	2	—	3	
3 or more	<40	2	24	4	—	1	—	1	6	2	—	—	—	—	84
	40-59	2	18	1	—	3	—	—	7	—	—	—	—	5	
	60+	1	5	—	—	—	—	—	—	—	—	—	—	2	

Table 4—Sample and Population of Physicians in Study Area—by Strata (Upper figure is number in sample; lower figure is number in population; blank cells are empty.)

No. of Referrals	Age	White General Practitioners						White Specialists						Negroes
		Pop. Under 25,000			Pop. Over 25,000			Pop. Under 25,000			Pop. Over 25,000			
		<25 Mi.	25-99	100+	<25 Mi.	25-99	100+	<25 Mi.	25-99	100+	<25 Mi.	25-99	100+	
0	<40	1 6	4* 74	3* 55	1 12	1 23		2 36		1* 27	1 23	2* 43	2* 43	1 19
	40-59		3* 66	3* 58		1 17			4* 80	3* 62		6* 113		2 33
	60+		3* 67	3 51		1* 27		2 37		1 20		2* 41		2 31
1-2	<40	2 6	10 30	4 12		1 2			2 5	2 5		3 8	1 2	2 5
	40-59		10 31	5 14		3 8			7 22	4 13	1 3	3 9		3 10
	60+		4 13					3 10				1 2		1 3
3+	<40	1 2	8 24	2 5		1 4		3 9						
	40-59	1 3	6 18						2 7					2 5
	60+		2 5											1 2

* Cells for which one physician was added to sample when sample was revised.

necessitated some combining of the cells in their original stratification (Table 4). The combination of cells and the proportion of each cell to be sampled was dictated by the necessity for selecting a sample of workable and realistic size and one which was also representative of the base population.[18] These factors influenced selection of patient and agency samples also. The total sample size came to 156 physicians with 55 who did not refer patients, 72 who referred one or two, and 29 who referred three or more, in 1956.

The names of the physicians in the sample were drawn at random. Nonreferring physicians were interviewed when convenient and over the entire field work period. Referring physicians were interviewed after a patient referred by one had visited the clinic and had been admitted to the patient sample.

If a physician could not be located, had died, had moved from the study area, was no longer in practice or refused to participate, he was dropped from the sample and from the base population. The physician's name was replaced unless his exclusion decreased the population of his cell enough to reduce the corresponding sample size.

When 52 physicians in the sample had been interviewed it became apparent that physicians designated as "one or two referrers" were not sending patients to the clinic at a rate sufficient to insure that all in the sample could be interviewed within a reasonable period of time. Apparently many of these physicians do not refer one or two patients every year. In order to compensate for this the total population of physicians who referred one or two patients was added to the sample list. Acceptance

of physicians for the sample was then continued for each cell until the total number for that cell had been attained, whereupon the remaining physicians in that cell were dropped from the sample list.

Preliminary analysis of reasons given for referral in general and referral to a medical center, in the first 52 interviews, using Kendall's coefficient of concordance,[19] indicated that nonreferring physicians gave a wider variety of answers than did physicians in other groups. This led to an increase in the sampling proportion for this group from 5 per cent to 6.5 per cent, the increment being limited by realistic considerations, and resulted in the addition of one physician to each of 13 cells marked by an asterisk in Table 4. These additions, which are not reflected in the figures in the table, increased by one the sample size in each of the designated 13 cells. This brought the total physician sample to 169.

Selection of Patient Sample

The patient sample was keyed to the physician sample. Since the interviewing of a physician was done only after a patient referred by him had been seen in the clinic and interviewed for this study, there was one patient in the sample for each referring physician in the physician sample. For physicians referring three or more patients a second patient was interviewed in order to increase the size of the patient sample and obtain a clearer picture of the habits of these regular referrers. This provided a sample of patients referred by physicians of 130.

Whenever the patient was hospitalized immediately or within an interval of time too short to permit a home visit, the patient was dropped from the study. A period of hospitalization following closely upon the events in the clinic would not permit separate expressions of opinion and feeling concerning these two experiences. This rate of attrition was 19 per cent.

Selection of Other Referral Sources

The other sources of referrals were sampled as follows: (1) The 60 departments of public welfare in the study area were stratified on the basis of distance from North Carolina Memorial Hospital and referral rate; 14 agencies were chosen at random. Included were nine agencies which had referred patients to the General Clinic and five which had not. Eleven patients referred by these nine agencies were included in the patient sample. (2) The 17 vocational rehabilitation counselors in the study area were stratified according to distance from North Carolina Memorial Hospital and referral rate, a random sample of six counselors being drawn. Five patients referred by five of these counselors were selected randomly for the patient sample. One counselor had not referred patients to the General Clinic. (3) Some patients do not have family physicians and refer themselves to the clinic. The 60 counties in the study area were stratified on the basis of distance and rate of referral of the self-referred patients per 100,000 population. A random sample of 12 counties and 13 patients from them was selected.

County health departments are sometimes a source of referral of patients to the clinic. These were eliminated from sampling because the number of patients was only 1.8 per cent of those from the study area. Patients referred from other clinics within North Carolina Memorial Hospital were excluded because these were not considered to be primary referrals.

Ultimately, a sample of 189 physicians and referring agencies and a sample of 159 patients was selected. Interviews with physicians and patients were conducted throughout the calendar year in

order to balance out seasonal variations in the demand for medical care.

Methods of Interviewing Physicians

The physicians in the sample were interviewed by members of the Departments of Medicine and Preventive Medicine in the University of North Carolina School of Medicine. A previous study by Peterson, Andrews, Spain, and Greenberg[20] had demonstrated that physicians could approach physicians on a basis of mutuality of interests and be accorded prompt acceptance. This method involves greater expense than a mail questionnaire, but it was believed the relationship would foster the expression of personal reasons and opinions which would not be apparent from an impersonal questionnaire. In order to minimize changes in referral patterns during the period of field work the physician investigators did not provide gratuitous information about the clinic nor did they voluntarily attempt to correct misconceptions about clinic policies.

Early forms of the protocol for use in interviewing physicians and agencies consisted mainly of a list of structured, directive questions. It was soon realized that this was little better than a mail questionnaire. Through a series of revisions interspersed with pretesting in the field there evolved a focused, nondirective, semistructured interview form.[21,22] Opening questions were designed to focus attention upon the general aspects of the subject following which additional questions led to consideration of specific details. Multiple answers were carefully recorded in the sequence in which they were given; this order may indicate either the relative importance of answers or it may indicate what the respondent believes is expected or acceptable to the interviewer. Experience in pretesting interviews with 20 physicians led the interviewers to anticipate patterns of answers to certain questions. If the interviewee failed to mention the usual and common answers spontaneously, these were suggested by the interviewer and the physician was asked to comment on them. Information gained in this fashion may be difficult to relate to that obtained by nondirection. However, it was believed that use of this additional step was desirable because it would lead to better rapport with the physician, encourage more candid expression of opinion, and result in more complete discussion of the subject.

In final form the interview covered the following areas: (1) reasons for referring a patient to another physician or a medical center; (2) reasons for choice of a particular medical center; (3) reasons for referring the "key patient" (the patient whose referral initiated the interview) to the clinic and whether the referral was initiated by physician, patient, or agency; (4) method of arranging referrals to the clinic and comments concerning this; (5) communication between the physician and the clinic and suggestions for improvement; (6) the physician's judgment of the effect of the referral on the patient's health; (7) the physician's reaction to clinic follow-up visits; (8) the use of community health and welfare agencies in sponsoring the referrals. This protocol was modified slightly to make it suitable for interviewing public welfare case workers and vocational rehabilitation counselors.

Additional information was sought by asking each physician to keep a record of all patients whom he referred out of his practice during a two-week period. This record showed the patient's age, sex, race, where he was referred, and the reason for referral. It was realized that this would provide little information about an individual physician's practice but analysis of the data from groups of physicians should help to describe the population of the patients who were referred.

Methods of Interviewing Patients

A trained medical social worker and a cultural anthropologist with extensive field experience were chosen to interview patients, public welfare case workers, and rehabilitation counselors. The skill and experience of these investigators in conducting penetrating, focused interviews made them much more suitable than unskilled interviewers trained solely for this study.

Identification of these interviewers with the clinic was unavoidable and, although some identification was desirable, this was minimized. The interviewers introduced themselves to patients by stating that they were seeking information which would be helpful in planning clinic services. The interviewers were not given any details of the patient's medical problems in an attempt to maintain objectivity and forestall any tendency to interpret clinical data to the patients. Initially, this research role posed serious conflicts for the social worker when the need for service and the wish to provide it had to be delegated to other persons in favor of the research objectives of the study.[23]

A focused, nondirective, semistructured type of interview was devised similar to the form used for interviewing physicians. This was pretested with approximately 100 patients.

The patient interview was designed to obtain information in the following areas: (1) Whether referral of the patient was suggested by physician, patient or agency; (2) reasons for going beyond the local environs and for choosing the General Clinic of NCMH; (3) the total cost of the clinic visit to the patient including fees, transportation, meals, lodging, care of children, and wages lost; (4) the patient's expectations and satisfactions regarding clinic procedures; (5) the patient's concept of the role of the clinic in providing medical care; (6) the effect of the clinic visit on the resolution of the patient's health problems and the patient's understanding of the clinic's recommendations.

Initiation of Patient Interview

The events leading to the interviews with patient and physician were initiated by the appearance in the clinic of a patient referred by a physician or agency in the sample. A request for an appointment usually preceded by several days the patient's arrival in the clinic, which made it possible to anticipate and arrange for the interview.

Because of the limitations on time during the first clinic visit, only a very brief interview was feasible. At the outset the brevity of this interview was thought to be a handicap, but it was soon apparent that in the familiar surroundings of his home the patient was more at ease and better able to focus on the clinic visit.

In the ten or fifteen minutes available to the interviewer during the patient's initial clinic visit, emphasis was placed on establishing rapport with the patient, enlisting his cooperation and explaining the reasons for the interview. It was essential to obtain precise directions for locating the patient's home, a complicated task in rural areas. Consultation with the patient's clinic physician enabled the social worker to ascertain when the patient's evaluation had been completed and when the final home interview would be appropriate. The time elapsing between initial clinic visit and home interview varied from four to eight weeks. It was usually possible for the interviewer to establish rapport and overcome cultural barriers during the brief interview in the clinic so that her visit to the home was welcomed. A few patients (4.5 per cent) refused to permit the home interview although all cooperated at the time of the clinic visit. Because of employment demands upon the patient, the home interview occasion-

ally was conducted in the less favorable environment of the patient's place of employment, a condition which tried the ingenuity of the interviewers.

Initiation of Physician Interview

As soon as evaluation of the patient was completed and the customary summary letter sent to the referring physician or agency, the director of the study was notified. A letter from the dean of the School of Medicine was then sent to the referring physician stating the aims of the study and introducing one of the physician interviewers. Several days later a convenient time and place for the interview was arranged by telephone. Physicians were interviewed in their offices, in their homes, in hospital conference rooms or at lunch. Similar arrangements were made by the social worker and anthropologist for interviewing public welfare case workers and rehabilitation counselors.

Despite the fact that this interview represented another demand on the time of the busy practicing physician, the opportunity to discuss the subject at hand usually was met with enthusiasm. The refusal rate was less than 1 per cent.

Comments

An individual's decision to seek a physician's help and the physician's decision that he requires consultant advice are among the most important, yet least studied, processes in the field of medical care. Koos[24] has studied the first of these problems and the present investigation extends his studies in attempting to define determinants of referral from the family physician to a university clinic.

Preliminary analysis of the data indicates that the frequency of referral, to a university clinic at least, is not constant among physicians in the low frequency group. This variation of referral pattern necessitated a change in sampling method in order to fill the sample of physicians in the "one or two referrer" group in a reasonable period of time. It is possible that this finding is related to the tentative conclusion that patients exert substantially more influence in initiating referrals than was anticipated.

Another complication was the fact that 19 per cent of the patients seen in the clinic were hospitalized within a week or two of their initial clinic visits. This resulted in preliminary interviewing of an unforeseeably large number of patients who were subsequently dropped from the sample.

The low refusal rate among physicians for interviews documents the willingness of physicians to collaborate readily and frankly in studies of medical care.

The design of this study may have application in the investigation of the patterns of hospital admissions, the management of specific diseases, and the evaluation of other medical care programs. It may be particularly pertinent to planning the development of health centers in rural areas.

Summary

1. Methods for analysis of the physician population of a rural state and the population of patients referred to a university hospital outpatient department in the course of one year are described.

2. A method for proportional sampling and stratification of the physician and patient populations in a study of the process of patient referral is discussed.

3. Application of the focused, semistructured, nondirective interview is discussed.

4. Certain problems and complications in the design of the study are reviewed.

5. Possible applications of the design to other medical care problems are mentioned.

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APPENDIX

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This is a report on a new multiple antigen containing poliomyelitis vaccine in combination with diphtheria and tetanus toxoids and pertussis vaccine. When given to children aged from two months through five years, a satisfactory antibody response was induced.

MULTIPLE ANTIGEN FOR IMMUNIZATION AGAINST POLIOMYELITIS, DIPHTHERIA, PERTUSSIS, AND TETANUS

II. RESPONSE OF INFANTS AND YOUNG CHILDREN TO PRIMARY IMMUNIZATION AND EIGHTEEN-MONTH BOOSTER

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THE DESIRABILITY of combining poliomyelitis immunization with routine immunization of infants against diphtheria, tetanus, and pertussis has been recognized. Such a program, if generally adopted, would insure greater and more uniform protection against future outbreaks of poliomyelitis and would provide another advance in preventive medicine. Indeed, the efficacy of diphtheria, pertussis, and tetanus antigens as a combined vaccine (DPT) in infants has already been shown[1-3] and the need for protection of infants against polio has been reported and is becoming increasingly apparent.[4-6] Killed trivalent polio vaccine evokes a response in infants and polio immunization of infants has been advocated.[4,5,7-9]

To accomplish the objective of combined immunization of infants many clinicians have been starting polio inoculations at the time the diphtheria, tetanus, pertussis immunization is begun. By mixing the two vaccines (DPT and polio) just prior to administration the same principle has been carried one step further.[9] Reported animal studies have shown that antibody response can be effected by the administration of such mixtures.[10,11] These procedures suffer, however, from one or more disadvantages. In the first procedure combined immunization is accomplished by increasing the total injections given. In the latter, such immunization is accomplished by the administration of a necessarily increased volume of the mixed vaccine with the attendant disadvantage of uncertainty concerning the stability and compatibility of the ingredients of such mixtures. The ideal solution would be a stable vaccine preparation containing in a small volume dose all the basic antigens in a concentration equal to that found in the individual vaccines. Once the numerous complex problems involved in achieving such an objective were resolved, the three lots of Quadrigen* (combined DPT-poliomyelitis vaccine,

* Parke, Davis and Company trade-mark.

aluminum phosphate adsorbed) used in this study were then prepared. A preliminary report on the preparation and testing of this product has already been made.[6]

Materials and Methods

Antigen Component—The poliomyelitis virus antigens were from killed concentrates of trivalent poliovirus vaccine prepared by the formalin-ultraviolet irradiation procedure[11a]; diphtheria and tetanus were purified toxoids; and pertussis was an inactivated suspension of pertussis bacilli. The antigen components were concentrated so that after combination each 0.5 ml contains a full immunizing dose according to minimum requirements established by the Division of Biologics Standards (DBS) of the National Institutes of Health for monovalent vaccines.[12-15] Animal tests on the pertussis antigen which went into the Quadrigen preparations used for the primary series of inoculations showed, however, that this antigen, prior to combination, had been a low potency. The pertussis antigens employed in the Quadrigen used for the booster dose, and that for all subsequent lots of Quadrigen produced for experimental investigation, have met or exceeded minimum requirements of the DBS. With the noted exception for the pertussis component in the first two vaccines, all of the components have also met or exceeded minimum DBS requirements when combined and tested in the Quadrigen preparations.

Preservative — Phemerol,* 1:40,000 (recrystallized benzothonium chloride).

Mineral Carrier — The components were adsorbed on a Holt-type aluminum phosphate adjuvant[16] so that a final concentration of 2-2.5 mg of mineral carrier per 0.5 ml would result.

Dosage—0.5 ml intramuscularly.

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Serum Antibody Determinations—The concentration of poliovirus neutralizing antibody in serum samples was determined in accordance with standard procedures by titration of twofold dilutions (1:4 to 1:2,048) of sera in monkey kidney tissue cultures in disposable plastic panels.[17] Serum dilutions were held in a mixture with the specific poliovirus challenge at room temperature for approximately ten minutes prior to mixture with the tissue culture cells. Response to the diphtheria and tetanus antigens was determined from standard quantitative antitoxin tests.[18,19] Response to the pertussis antigen was based on the quantitative determination of specific agglutinin by tests developed in these laboratories in which the serums are incubated overnight with live suspensions of pertussis bacilli.

Design of Study—The subjects in this study were well children drawn from the regular child health clinics conducted by the Detroit Department of Health. The children ranged in age from two and one-half months through five years. From 300 admitted to the study, 298 preprimary vaccination blood specimens were obtained, and 224 children completed the three-dose schedule.

For this trial it was decided to follow the DPT immunization schedule in regular use by the Health Department. Accordingly, the primary series consisted of three doses of vaccine (Quadrigen) at monthly intervals for the older children. Those under six months of age when the immunization series was started were given a fourth dose. The rationale for the fourth dose is predicated on the assumption that the immune response to antigens in the first six months of life might not be as adequate as the response in the second six months or later. Blood specimens were obtained at the time of each inoculation and two weeks after the final injection. This scheme of inoculations and bleedings is summarized in Figure 1.

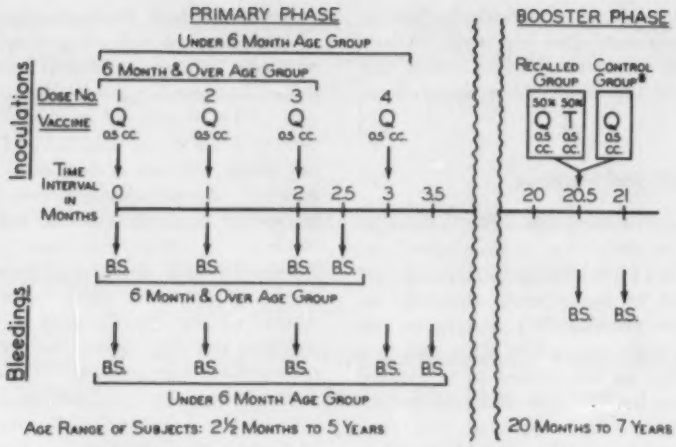

Figure 1—Scheme of Inoculations and Bleedings

Legend: Q=Quadrigen; T=Triogen (DPT); B.S.=Blood Specimen.
* No previous history of polio vaccination.

These children were given their initial injections of vaccine beginning in July and August, 1956, and were recalled in March, 1958, for a 15- to 18-month bleeding and booster inoculation. Recall or booster injections of any multiple antigen containing diphtheria-tetanus toxoids with pertussis vaccine are recommended between 12 to 18 months of age and again at three to four years of age by the American Academy of Pediatrics[7]; at the age of two to three years by the Michigan Department of Health[20]; and at one year and five years postprimary by the World Health Organization.[21] A marked rise in antibody titers following a booster injection of inactivated poliomyelitis vaccine given one year after primary vaccination has been reported.[22] The timing of the booster in this trial followed the procedure routinely employed in the Detroit child health clinics for DPT immunization. At the time of the booster the children ranged in age from 20 months to seven years. Of the 224 children who completed their primary series, 104 responded to the invitation for a booster.

In order to provide a control for the relative booster response to the bacterial and to the poliovirus antigens, as well as to provide a group of subjects that would permit evaluation of the persistence of poliovirus antibody following the primary series of inoculations, alternate returning subjects were given an 0.5 ml dose of Quadrigen or Triogen* (DPT alone), respectively. At the same time, a new group of 51 children of corresponding age range who by history had never been immunized with polio vaccine were admitted to the study as further controls and were given a single 0.5 ml dose of Quadrigen. A postbooster blood sample was obtained two weeks later from all subjects.

Statistical Treatment of the Data—The data obtained from the serum titrations had two open classes of indeterminable values. For example, in the case

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of the polio responses these were the titers found to be less than 1:4 or 1:2,048 or greater. Other indeterminate classes (e.g., <8, <16, etc.) were observed in cases where the quantity of serum was insufficient to test at 1:4 or if tissue culture toxicity prevented a valid reading at the lower dilutions. Except for the open classes at the two extremes, all other indeterminate values were excluded from tabulations.

Since the number of observations noted at the two terminal open classes was quite large, use of the geometric mean was contraindicated. The distribution was severely skewed at the beginning of the immunization procedures. Normalizing frequencies were observed as active immunization progressed and skewing at the other extreme was seen following the booster inoculation. Positional statistics, therefore, were thought to be the best parameter estimates with the median used to show changing antibody status with active immunization. In certain comparisons the distribution of antibody values is shown in three percentage groupings: less than four, four to 32, and greater than 32. Calculated intermediate antibody values were adjusted downward to the basic dilution levels on the basis that neutralization was known to occur at the lower value, but was inconclusive at the higher value. The average deviation and quartile values were not sufficiently descriptive of the dispersion about the median; therefore, the tenth to 90th percentile spread also was used to describe this dispersion.

Reactions

In the primary phase of the investigation, in which a total of 851 Quadrigen inoculation exposures accumulated, reactions were minimal. Noted were 16 instances of tenderness at the site of the injection, ten instances of fever within 48 hours after inoculation, and four instances of reported rash: one, a vesicular pruritic eruption observed after the third dose of vaccine, another, a urticarial type of reaction following the second injection. In the secondary or booster phase of the investigation reactions to either the Quadrigen or Triogen were of negligible proportions both from the standpoint of incidence and severity. In this phase there were 52 inoculation exposures in each of the three series. A nodule at the site of injection was reported in two cases receiving Quadrigen and one case in the DPT (Triogen) series; tenderness at the site of inoculation was complained of in the same frequency; fever attributable to the antigen was noted in two subjects on each series; and irritability was cited in one instance of the DPT series. Information on reactions was obtained by interviewing the mothers at each clinic visit, by asking them to report all illnesses or alleged reactions by telephone at any time, and by physician examination of the children at each clinic visit.

Preimmunization Antibody Status

Of the 298 preimmunization blood specimens, 52 serums showed diphtheria antitoxin levels of 0.01 unit per ml or greater, with 19 of these from children over six months of age. Twenty-two showed greater than 0.1 unit of tetanus antitoxin per ml with 14 of these coming from children over six months of age. None of the prevaccination bloods contained significant amounts of pertussis agglutinin. In 94 no poliovirus antibody to any type was detected (triple negatives). It is likely, since it has been reported that the half life of poliomyelitis maternal antibody is from three to six weeks,[23,24] that most of the demonstrable polio antibody in the younger group was passively acquired from the mother (about half of the children in the study were six months of age or younger).

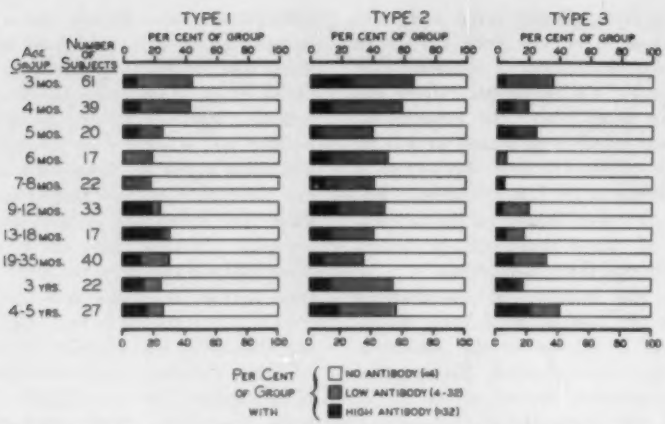

Figure 2—Preimmunization Distribution of Poliovirus Antibody by Age Groups Among 298 Children

Figure 2 shows the preimmunization distribution of poliovirus antibody by age groups for each virus type. It may be seen that the incidence of detectable antibody decreases with age up to approximately eight months, then increases with age from this point as could be expected from chance exposure to natural infections. On a composite basis approximately 80 per cent are without antibody at the eight-month period. In general, passive antibody levels are most prevalent for Type 2, and subsequent exposures seem to appear at an earlier age. Exposure to Type 3 was apparently not as early in this group of children and passive antibody was also observed less frequently. Type 1 was intermediate in passive antibody level and probable time of exposure.

Antibody Response to Immunization

All of the 219 serums drawn two weeks after the primary series of inoculations showed protective diphtheria and tetanus antitoxin levels of greater than 0.1 unit per ml for diphtheria and greater than 1.0 unit per ml for tetanus. Only 17 per cent for diphtheria and 7 per cent for tetanus showed demonstrable antitoxin before vaccination. None showed pertussis agglutinin prior to immunization, whereas 76 per cent of the 61 post-primary serums tested had a titer of 1:50 or greater. Because of the presence of passive maternal polio antibody in such a high percentage of the subjects prior to vaccination, response to the polio antigen component was somewhat more difficult to evaluate. Nevertheless, 76 of the 94 triple-negative subjects completed the primary immunization series and of these, postimmunization serums showed neutralization titers of greater than 1:4 in 89 per cent to Type 1, 98 per cent to Type 2, and 69 per cent to Type 3.

The antibody status of the group 18 months after the completion of the primary series is shown in Figure 3 for the three polioviruses and in Figure 4 for the other antigens. It is apparent that the over-all loss of antibody over this period is relatively small. In respect to the polio antibody approximately 75 per cent of the Quadrigen-primed subjects still retained significant antibody levels to Type 1, 95 per cent to Type 2, and 55 per cent to Type 3. Thus, even after

the 18 months which had elapsed since the primary immunization series, the polio antibody status of the Quadrigen-vaccinated group is much better than that of a control group (C in Figure 3) which had not received earlier polio immunization. While the number of paired pre- and postbooster serum test results were quite small for the response to the bacterial antigens it, nevertheless, is evident from Figure 4 that a high proportion of the subjects primed with Quadrigen retained significant antibody levels.

As could be expected after a year and a half interval following primary immunization, some of the subjects (up to a maximum of nearly 50 per cent for Type 3 polio and for diphtheria) failed to show demonstrable antibody at this period. This observation indicates the need for further antibody stimulation. The efficacy of Quadrigen in producing such stimulation is evident in the post-booster results. Reference again to Figures 3 and 4 shows that nearly 100 per cent of the subjects who had received Quadrigen as their primary immunization had excellent antibody levels to all the component antigens following a Quadrigen booster dose.

When one considers the results from the control group (C) of corresponding age range, but without previous poliovirus vaccination, which shows that a single dose is only 40 to 60 per cent effective in producing polio antibody, it becomes apparent that essentially all of the children benefited from the primary doses regardless of whether or not circulating antibody was detected or retained. Their immunologic systems are conditioned so that a rapid recall or anamnestic response follows later stimulation by poliovirus antigen. It is of particular interest that this rapid recall of antibody also occurs in the youngest

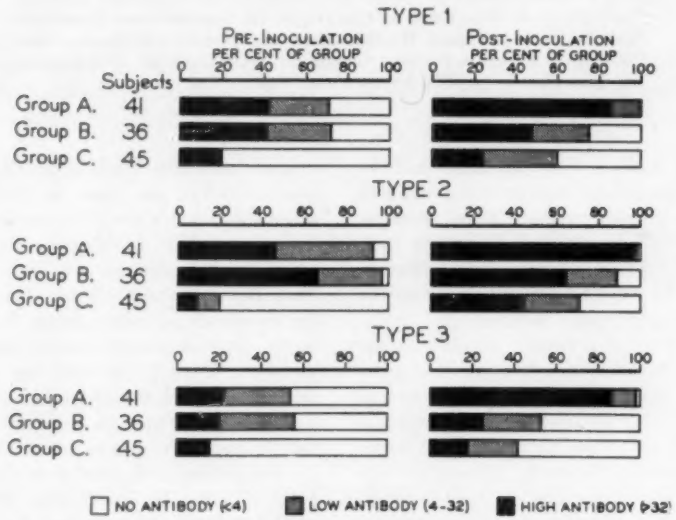

Figure 3—Distribution of Polio Antibody for: Group A: One Dose of Quadrigen 18 Months After Quadrigen Primary Series. Group B: One Dose of Triogen 18 Months After Quadrigen Primary Series. Group C: One Dose of Quadrigen—Previous History of DPT but no Polio Vaccination

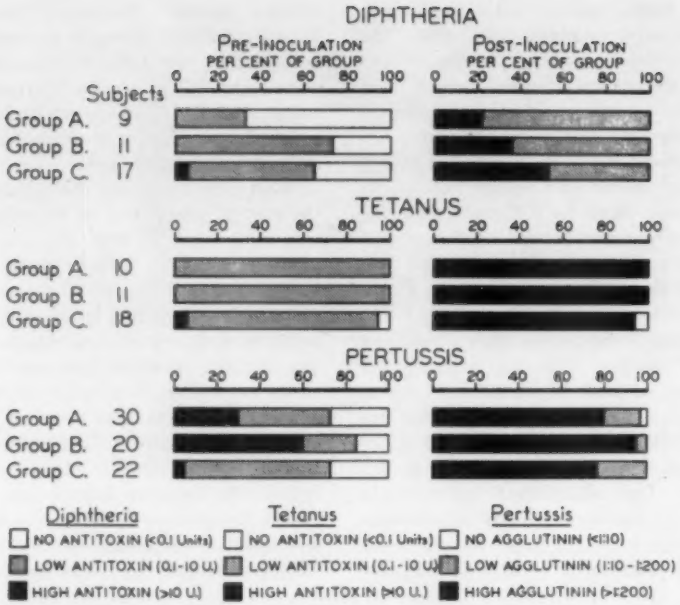

Figure 4—Distribution of Diphtheria, Tetanus, and Pertussis Antibody for: Group A: One Dose of Quadrigen 18 Months After Quadrigen Primary Series. Group B: One Dose of Triogen 18 Months After Quadrigen Primary Series. Group C: One Dose of Quadrigen—Previous History of DPT but no Polio Vaccination

infants studied (two months) and in those who did not appear to respond well to the primary series. These findings reveal that the level of detectable antibody following primary immunization cannot be used as the sole criterion for evaluating antigenic potency.

The marked antibody response to the booster inoculation is demonstrated quite clearly when the medians of the serum antibody levels following each inoculation are plotted for the several age classifications as in Figure 5. It may be seen from these graphs that the two- to three- and four- to five-month-old children respond less vigorously to the primary series of inoculations than the children who are six months of age and older. For Types 1 and 3 no increase in the median antibody levels is noted in the two- to three- and four- to five-month groups until after the third or fourth inoculation, while an increase is noted after two inoculations for Type 1 and after three inoculations for Type 3 in the six-month and older group. Response in the younger groups is somewhat more rapid for Type 2, but still lags behind the response of the older group. The failure of the median antibody levels for the young infants to rise with as little stimulation as is needed in the older children must be considered, however, in the light of the fact that during the months elapsing between inoculations the young infant group is still steadily losing maternal antibody. This loss would tend to balance any small gain in active anti-

body resulting from initial response and might well lower the median for the group. Nevertheless, it seems clear that active antibody production in the young infants may still be of a lower order of magnitude than that in older children who have responded with relatively high levels of antibody.

The levels following three inoculations in both younger groups was found to be significantly below the levels in the six-month and older group following three inoculations ($p < 0.001$). However, when these same infants were given a fourth dose of the vaccine, their resulting antibody levels were increased to a level not significantly different from those obtained in the older children. Considering that the three-month group were six months of age at the time they received their fourth dose, it is clear from a comparison in the graphs to the response to the first dose in the six-month group that the fourth dose response was dependent upon the earlier primary inoculations. This rise in antibody titer, therefore, did not occur merely because the group was older. It has been reported that passive maternal antibody might interfere with the development of an active antibody response in the very young infant.[4,23,25] It is evident from these results that initiation of immunization as early as two to three months of age is effective in inducing antibody response to polio in spite of the presence of maternal antibody. Also, a fourth dose of Quadrigen is desirable for infants under six months of age to bring polio antibody levels in line with those obtainable in older children with only three doses.

The retention of polio antibody during the 18-month interval following the primary series of inoculations is again apparent from the plots of the median values (Figure 5). No significant difference was found between the antibody levels of the young and older age groups at the prebooster level for any of the three types. While the difference that shows on the graph for Type 3 at this point was not found to be significant, it is felt that further study of this point may be desirable, since the size of the sample in this series was small.

The very high median antibody levels following the booster dose again em-

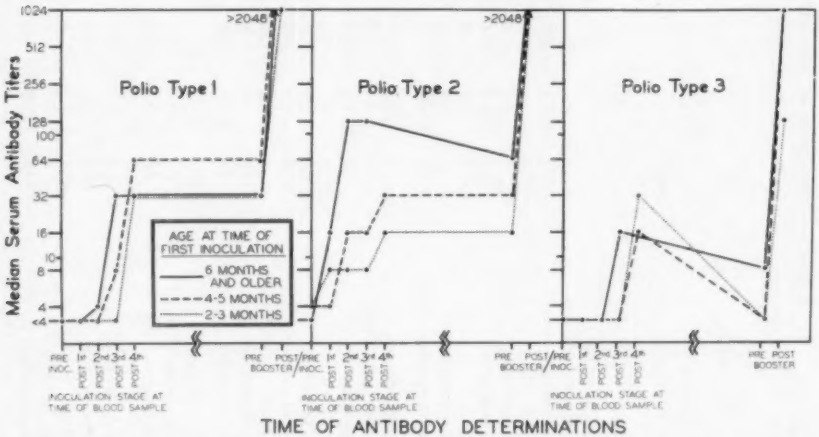

Figure 5—Polio Antibody Response, by Age Group, Following Each Inoculation of the Primary and Booster Series

Table 1—Dispersion of Antibody Levels Before and After Primary and Booster Immunization

	Preprimary			After Third Inocu.			After Fourth Inocu.		Prebooster			Postbooster		
	Age at Initial Inocu.			Age at Initial Inocu.			Age at Initial Inocu.		Age at Initial Inocu.			Age at Initial Inocu.		
	2–3 Mo.	4–5 Mo.	6 Mo.+	2–3 Mo.	4–5 Mo.	6 Mo.+	2–3 Mo.	4–5 Mo.	2–3 Mo.	4–5 Mo.	6 Mo.+	2–3 Mo.	4–5 Mo.	6 Mo.+
Type 1 Poliovirus Neut. Antibody Titers														
Total observations	57	54	188	42	39	139	27	19	20	13	53	12	6	23
10th percentile	<4	<4	<4	<4	<4	<4	<4	8	<4	<4	<4	16	8	32
25th percentile	<4	<4	<4	<4	<4	8	4	16	8	32	4	512	1024	512
Median	<4	<4	<4	<4	8	32	32	64	32	64	32	1024	>2048	>2048
75th percentile	4	4	4	16	32	256	128	256	64	512	256	>2048	>2048	>2048
90th percentile	16	>32	>32	32	64	1024	128	1024	128	>2048	>2048	>2048	>2048	>2048
Type 2 Poliovirus Neut. Antibody Titers														
Total observations	56	52	184	44	40	139	27	18	21	13	57	13	6	24
10th percentile	<4	<4	<4	<4	4	16	<4	<4	4	16	4	32	512	256
25th percentile	<4	<4	<4	<4	8	32	4	8	8	16	16	512	1024	1024
Median	4	4	<4	8	16	128	16	32	16	32	64	>2048	>2048	>2048
75th percentile	16	8	8	32	64	256	128	128	64	128	256	>2048	>2048	>2048
90th percentile	>32	>32	>32	64	128	1024	256	512	512	128	512	>2048	>2048	>2048
Type 3 Poliovirus Neut. Antibody Titers														
Total observations	59	52	185	43	39	139	27	19	23	13	56	13	7	24
10th percentile	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	32	<4	32
25th percentile	<4	<4	<4	<4	<4	4	4	4	<4	<4	<4	128	8	512
Median	<4	<4	<4	<4	<4	16	32	16	<4	<4	8	128	1024	1024
75th percentile	4	<4	<4	8	8	128	64	64	8	4	64	512	>2048	>2048
90th percentile	16	16	16	32	128	512	128	256	256	32	>2048	>2048	>2048	>2048

Table 1—Dispersion of Antibody Levels Before and After Primary and Booster Immunization (continued)

	Preprimary			After Third Inocu.			After Fourth Inocu.		Prebooster			Postbooster		
	Age at Initial Inocu.			Age at Initial Inocu.			Age at Initial Inocu.		Age at Initial Inocu.			Age at Initial Inocu.		
	2–3 Mo.	4–5 Mo.	6 Mo.+	2–3 Mo.	4–5 Mo.	6 Mo.+	2–3 Mo.	4–5 Mo.	2–3 Mo.	4–5 Mo.	6 Mo.+	2–3 Mo.	4–5 Mo.	6 Mo.+
Diphtheria Antitoxin Units														
Total observations	52	49	194	..	..	136	42	38	9	9	22	7	2	9
10th percentile	<0.01	<0.01	<0.01	..	..	0.1	0.1	0.1	0.01	0.01	0.01	1.0	..	1.0
25th percentile	<0.01	<0.01	<0.01	..	..	0.1	0.1	0.1	0.01	0.1	0.1	1.0	..	1.0
Median	<0.01	<0.01	<0.01	..	..	0.1	0.1	0.1	0.1	0.1	0.1	1.0	..	10.0
75th percentile	<0.01	<0.01	<0.01	..	..	1.0	1.0	1.0	0.1	0.1	0.1	1.0	..	10.0
90th percentile	0.01	0.01	0.01	..	..	1.0	1.0	1.0	0.1	0.1	0.1	10.0	..	25.0
Tetanus Antitoxin Units														
Total observations	55	52	188	..	..	134	43	39	9	9	26	8	3	9
10th percentile	<0.1	<0.1	<0.1	..	..	0.1	1.0	1.0	0.1	0.1	0.1	10.0	..	10.0
25th percentile	<0.1	<0.1	<0.1	..	..	1.0	1.0	1.0	0.1	1.0	0.1	>25	..	10.0
Median	<0.1	<0.1	<0.1	..	..	1.0	1.0	1.0	0.1	1.0	1.0	>25	..	>25
75th percentile	<0.1	<0.1	<0.1	..	..	10.0	1.0	10.0	1.0	1.0	1.0	>25	..	>25
90th percentile	<0.1	<0.1	<0.1	..	..	10.0	10.0	10.0	1.0	1.0	1.0	>25	..	>25
Pertussis Agglutinin Titers														
Total observations	56	53	189	..	..	20	10	16	21	11	45	11	4	18
10th percentile	<10	<10	<10	..	..	100	25	50	<10	50	<10	50	..	100
25th percentile	<10	<10	<10	..	..	250	50	100	<10	100	50	100	..	250
Median	<10	<10	<10	..	..	250	100	250	100	100	100	250	..	250
75th percentile	<10	<10	<10	..	..	500	250	500	100	250	500	500	..	500
90th percentile	<10	<10	<10	..	..	>1000	250	>1000	250	250	>1000	500	..	>1000

NOTE: Maximum dilution levels for poliovirus antibody titrations were arbitrarily set at 1:32 for the preprimary bloods only.

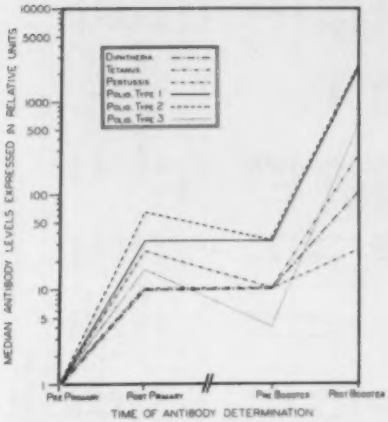

Figure 6—Antibody Levels for Diphtheria, Pertussis, Tetanus, and Poliomyelitis, Types 1, 2, and 3, Prior to and Following Primary and Booster Inoculations of Quadrigen. To Obtain Comparability, Pertussis Values Were Multiplied by 0.1, Diphtheria Values by 100, and Tetanus Values by 10

phasizes the effectiveness of the primary series of inoculations. Regardless of the age at which primary immunization was begun, and regardless of the antibody level following the primary series, response to the booster was uniformly high. Further confirmation of these conclusions may be obtained from a study of Table 1 in which the spread of antibody levels about the median is presented in greater detail. The similarity in antibody levels between the age groups for at least 50-75 per cent of each group prior to immunization indicates strongly that the difference in polio antibody production between the younger and older groups during primary immunization is a function of age.

The over-all antibody response for each of the six antigens in the vaccine following the primary and booster vaccination stages is shown in Figure 6 where the median antibody levels are expressed in relative units. This composite graph summarizes the effectiveness of Quadrigen as a multiple antigen for the simultaneous immunization against diphtheria, tetanus, pertussis, and poliomyelitis.

Summary

A new multiple antigen containing poliomyelitis vaccine combined with diphtheria and tetanus toxoids and pertussis vaccine induced a satisfactory antibody response to all antigen components when given to a group of children ranging in age from two months through five years. Children six months of age and older at the time of their initial dose were given a primary course of three monthly inoculations; the younger infants received four doses at monthly intervals. A booster dose of the quadruple vaccine was given about 18 months later.

The fourth dose given to the younger infants greatly improved their seroimmunological status and brought their antibody levels in line with those obtained in older children with only three doses. The booster dose of this multiple vaccine was found extraordinarily effective in enhancing the seroimmunological status of the children to all three types of poliovirus and to the bacterial components contained in the vaccine.

This uniformly high response to the booster dose occurred regardless of the age at which primary immunization was begun and regardless of the antibody level following the primary series.

The booster response was found to be a far more meaningful criterion for evaluating the effectiveness of the polio vaccine components than were serum antibody levels postprimary.

No clinical reactions of any serious consequence were reported or observed.

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This is a study of an outbreak of Asian-strain influenza in an institution for mentally retarded persons. The mortality was high and the investigation was made to see how the disease spread.

EPIDEMIOLOGIC OBSERVATIONS OF AN OUTBREAK OF ASIAN-STRAIN INFLUENZA IN A CLOSED POPULATION

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In the late summer and fall of 1957, during the major epidemic wave of Asian-strain influenza in California, there were a number of outbreaks of the disease in state institutions of various kinds. In general, these outbreaks appeared to have a much higher clinical attack rate than that noted in the population at large and, in some instances, the number of deaths was considerably larger than would be expected from the usual experience with this disease.[1] For these reasons and because it was hoped that something might be learned about the mechanism of spread of the disease, one of these institutional epidemics was intensively studied. The institution chosen was the Porterville State Hospital, which is operated by the California State Department of Mental Hygiene as a residential institution for mentally handicapped persons of all ages.

Material and Methods

Description of the Institution—The Porterville State Hospital is located about two miles from the city of Porterville, in the southeastern section of the great Central Valley, near the foothills of the Sierra Nevada Mountains. The hospital came into operation in 1953; the buildings and facilities are modern and attractive. At the time of the epidemic, there were 34 wards for the treatment of nonacute illnesses. Each ward is a separate one-story building; 26 of these wards have a capacity of 70 beds and eight are rated at 64 beds. In addition, there were four wards (although one closed for remodeling) for the treatment of acutely ill patients; these wards have space for from 28 to 38 patients each. The total capacity of the hospital was 2,458 patients, but in October, 1957, the daily census was 2,467, slightly in excess of the planned capacity.

Despite the physical separation of the wards and the provision of separate dining facilities in each ward building, there was considerable mingling of patients from different wards in schools, in the auditorium and recreational facilities, and in the utilization of patients from open wards as runners and to assist with the care of the patients on the closed wards.

Method of Study—The medical records office of the hospital compiles periodic reports which include basic tabulations of the age and sex composition of the hospital population as of the end of each month. In this study, the report of October 31, 1957, is used as the base for the calculation of attack rates. During the course of the epidemic, each

ward was requested to submit a special report of the cases of respiratory illnesses which occurred; this report included the name and age of the patient and the date of onset of the illness.

In order to make a more detailed analysis possible, a sample of 528 records of patients in residence in the hospital during the course of the epidemic was drawn by a random process from the central record file. For this group a number of characteristics, in addition to age and sex, were recorded. From this sample a subsample of 190 patients was selected and a blood specimen was obtained from each individual. The group selected for bleeding was not randomly chosen, in that some of the persons originally selected were not available to the bleeding team at the time of the visit to the ward, and in some instances attempts to obtain blood were not successful. However, the omissions are believed to introduce little error in the interpretation of the results. In addition to the blood specimens collected as a part of the study, acute- and convalescent-phase serum specimens were submitted to our laboratory during the course of the epidemic from patients with a clinical diagnosis of influenza-like respiratory illness.

Serologic Tests for Influenza—Serum specimens were assayed for their content of complement-fixing and hemagglutination-inhibiting antibodies to viruses of the influenza A group. The complement-fixation test was performed according to the method employed in this laboratory for many years and recently described by Jensen in a compend of diagnostic methodology.[2] The hemagglutination-inhibition technic used was essentially the standard method described elsewhere[cf. 2]; all serums assayed for hemagglutination-inhibiting antibody were pretreated with periodate to destroy nonspecific inhibitors.

The Spirup A′ strain was used to prepare the complement-fixing antigen, which consisted of infected allantoic fluid. The hemagglutinating antigens were prepared from the A/Albany/55, A/Denver/57 and the A/Japan/305/57 strains.

Description of the Epidemic

The analysis that follows is based on information collected for the entire patient population of the hospital where possible, and on the random sample of the population for some of the more detailed studies. For some of the tabulations, a comparison of the total population and the sample is made to justify the use of the sample to represent the entire group.

Distribution of the Cases in Time—The occurrence of cases reported from the patient population by the hospital by day of onset is shown in Figure 1. During the month of September, only sporadic cases of respiratory illness were encountered until the 30th, when the incidence curve began to ascend. During the first week of October, the number of cases increased sharply, reached a peak on October 8-11 when approximately 200 cases per day were occurring, and then descended almost as sharply. The curve tapered off during the last week in October and by the first of November only sporadic cases were occurring. The explosiveness of this outbreak is perhaps better illustrated by Figure 2, from which it will be noted that of the 1,391 cases which occurred, approximately 90 per cent occurred in the 15-day period between October 3-18.

This over-all curve of incidence is actually the summation of a series of individual ward epidemics, and the short duration of the epidemic as a whole is a reflection of the rapidity of spread of the disease from one ward to another within the institution. The epidemic pattern varied considerably from one ward to another, with some association between the attack rate, duration of the

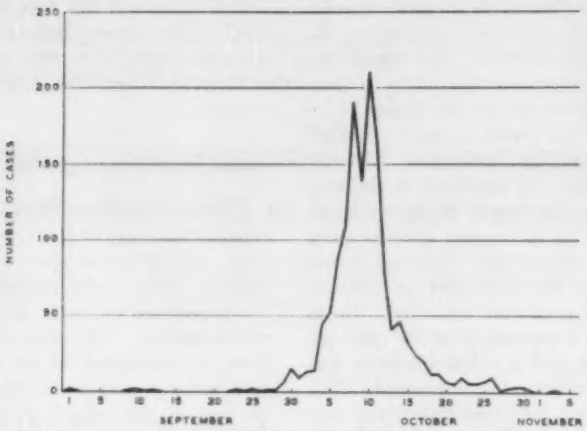

Figure 1—Occurrence of Reported Cases of Influenza-Like Illness by Day of Onset

outbreak, and the nature of activity of the patients. Table 1 gives the classification of the wards by type of patient and the attack rates for each ward. Undoubtedly much of the variation in attack rates based on reported cases is the result of marked variation in reporting practice; for example, Ward M-10, from which no cases were reported was later shown to have experienced a considerable amount of infection as judged by the presence of antibodies against influenza found in serums of patients from this ward.

However, when the wards are grouped according to the activity status of the patients, some of the reporting irregularity is eliminated and it can be seen

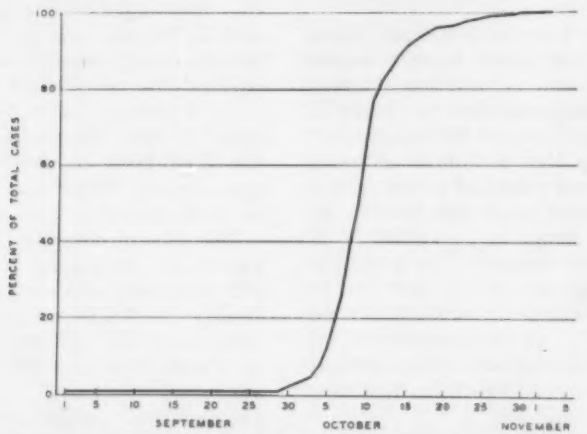

Figure 2—Occurrence of Reported Cases of Influenza-Like Illness by Day of Onset, Cumulated as a Per cent of Total Cases

Table 1—Characteristics of Each Ward with Clinical Attack Rates, Serologic Findings, and Classification by Activity of Patients

Ward	Sex	Age	Activity Classification	Attack Rate in Per cent		Serologic Results	
				Ward	Group	No. Pos.*/ No. Tested	Per cent Pos. by Group
M–16	M	12	Attend school at least three	95		6/6	
F –12	F	12	hours daily.	62	89	4/5	93
M–15	M	6–18[a]		99		6/6	
F –11	F	6–18[a]		100		9/10	
M–2	M	12–18	Mildly to severely retarded	51		5/6	
M–3	M	8–14	younger children.	88		5/6	
F –2	F	12–18		68		7/10	
F –3	F	8–14		70	69	5/7	75
M–4	M & F	6–12	[a]Patients in ward M–15 and	84		10/11	
M–5	M & F	6–12	F–11 may attend school.	100		3/5	
F –4	M & F	6–12		28		7/9	
F –5	M & F	6–12		62		3/6	
M–11	M	18	Habit training unit; patients	86		4/5	
M–12	M	18	without bladder control or	75		5/6	
F –14	F	18	ability to dress themselves.	53	61	9/10	79
F –15	F	18		31		4/7	
M–13	M	18	Older, less active habit	60	50	4/7	42
F –17	F	18	trained patients.	42		5/6	
M–14	M	18	Younger, more active,	44		0/1	
F –13	F	18	mildly retarded industrial	56	49	4/5	50
F –16	F	18	therapy patients.	47		1/4	
M–6	M & F	All	Amebiasis	21		2/2	
M–7	M & F	All	General	71		0/1	
F –6	M & F	All	General	97		2/3	
F –18	M & F	2–6	Medical Special	2		0/1	
E –1	M & F	All	Receiving Treatment	26	43	..	57
E –2	M & F	All	Acute Med. Wards	10		..	
W–2	M & F	All	Surgical	10		..	
F –18S	M & F	All	Feeding Problems	14		..	
M–1	M	6	Behavior	88	40	2/2	50
F –1	F	6	disturbances	16		1/4	
M–8	M & F	6–12	Bedridden, severely handi-	52		4/6	
M–9	M & F	6–12	capped physically; unable	29		4/5	
F –7	M & F	6–12	to walk alone; require much	68		7/9	
F –8	M & F	6–12	nursing care.	0	38	1/5	60
F –9	M & F	6–12		73		3/5	
M–10	M	Adult		0		5/6	
F –10	F	Adult		45		0/4	

* Complement-fixing antibody levels of 1:64 or higher.

that there is a reasonably consistent gradient of attack rates, the highest rates occurring in groups with the least restriction of movement. Another aspect of the effect of freedom of movement is shown in Figure 3. In this figure, the cases occurring in each group are accumulated according to the date of onset of the median case for each ward in the group. The cases reported for each day surrounding the median are expressed as a per cent of the total cases reported from each group. Again a fairly consistent pattern is noted, in that as activity is increasingly restricted there is a tendency for the outbreaks to be less explosive, and to spread over a longer period of time. Thus the patients with the highest contact rates show rapid spread of the disease, short duration of the outbreak, and high clinical attack rates, while bedridden patients are at the other end of the scale for each of these features.

Distribution of Cases by Age and Sex —The patient population of the hospital is largely concentrated in the younger ages, with a peak in the 5-14-year-age group, although the upper extreme of the age range is in the 80-84-year-age group. The age distribution of the cases and the age-specific attack rates are given in Table 2. The highest attack rate was recorded in the 15-19-year-age group, although there was little difference from age 5-19. In the adult groups, the attack rates dropped successively with age to a level below 30 per cent in persons over 50 years of age.

Males were attacked more frequently than females, a rate of 62 per cent compared with 51 per cent. The attack rates for males were higher in almost all age groups, but the difference increased with advancing age, and was most marked above age 30. Analysis of the male-female difference in terms of the ward of residence indicates that nearly all of the differences may be accounted for by differences observed between the

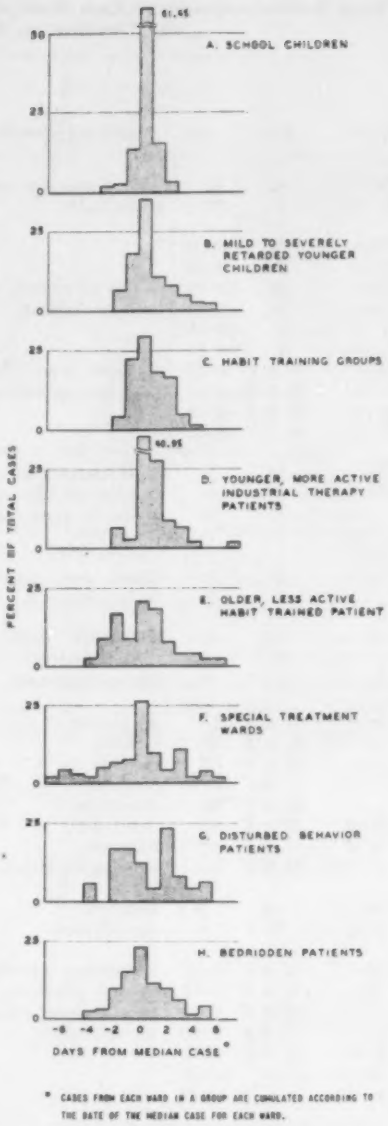
A. SCHOOL CHILDREN
B. MILD TO SEVERELY RETARDED YOUNGER CHILDREN
C. HABIT TRAINING GROUPS
D. YOUNGER, MORE ACTIVE INDUSTRIAL THERAPY PATIENTS
E. OLDER, LESS ACTIVE HABIT TRAINED PATIENT
F. SPECIAL TREATMENT WARDS
G. DISTURBED BEHAVIOR PATIENTS
H. BEDRIDDEN PATIENTS
PERCENT OF TOTAL CASES
DAYS FROM MEDIAN CASE*
* CASES FROM EACH WARD IN A GROUP ARE CUMULATED ACCORDING TO THE DATE OF THE MEDIAN CASE FOR EACH WARD.

Figure 3—Reported Cases of Influenza-Like Illness for Groups of Similar Wards. Graphed as Per cent of Total Cases for Each Group by Day of Onset as Related to Onset of Median Case

wards rather than by a true difference in susceptibility between sexes. Age-specific attack rates were calculated for the sample of the patient population. There is a greater variation in attack rates between the age groups here than in the rates for the hospital as a whole, probably because of the smaller numbers involved. The over-all attack rate as calculated from the sample is somewhat lower (50.4 per cent) and the sex differential did not appear. In general, however, the pattern of the epidemic is clearly represented by the sample.

Distribution of Cases by Other Host and Environmental Factors—In this analysis, based upon tabulations of the sample population, no significant differences related to race or religious preference were found. As shown in Table 3, attack rates were higher for ambulatory than for infirm patients and were higher for habit-trained than for not habit-trained. These differences undoubtedly reflect differences in contact rates in the same fashion as was indicated by the rates for patients in different activity groups derived from analysis of the total hospital population.

No pattern of attack rates, either by magnitude or spacing in time, could be determined from the geographic location of the ward on the reservation.

Mortality—From October 6 through November 9, 1957, there were 15 deaths at Porterville State Hospital which were associated with an influenza-like respiratory illness. The patients' ages at death ranged from three to 61 years. Taken at face value, this mortality experience represents a case fatality rate of 10.8 per 1,000. The expected number of deaths for the month at this hospital was from five to seven; therefore, even if only the excess deaths are considered, the case fatality rate was very high.

The occurrence of deaths at Porterville State Hospital by month and by quarter-year for 1956, 1957, and the first quarter of 1958 is given in Table 4. Although the deaths for the last quarter of 1957, which includes the month of the epidemic, do not exceed the deaths for the corresponding quarter of 1956, the distribution of the deaths within these quarters is very different. In 1957 a much greater proportion of the deaths was attributed to respiratory disease and

Table 2—Age and Sex Distribution of Reported Cases of Influenza-Like Illness in Total Population

Age Group	Males			Females			Both Sexes		
	Pop.*	Cases	Attack Rate, Per cent	Pop.*	Cases	Attack Rate, Per cent	Pop.*	Cases	Attack Rate Per cent
0–4	67	35	53	59	25	42	126	60	48
5–9	302	209	69	231	131	57	533	340	64
10–14	320	200	63	197	137	70	517	337	65
15–19	244	166	68	191	121	63	435	287	66
20–29	148	78	53	223	108	48	371	186	50
30–39	85	43	51	149	54	36	234	97	42
40–49	32	16	50	73	28	38	105	44	42
50+	36	17	47	99	23	23	135	40	30
All Ages	1,234	764	62	1,222	627	51	2,456	1,391	57

* From hospital census of October 31, 1957.

Table 3—Attack Rates (Per cent) for Influenza-Like Illness in a Sample of the Total Population by Age and Sex for Two Indexes of Activity

A. Ambulatory vs. Infirm

Age Group	Males			Females			Both Sexes		
	Ambul.	Infirm	Total	Ambul.	Infirm	Total	Ambul.	Infirm	Total
Less than 20	60	33	55	62	48	58	61	42	56
20 and over	37	33	37	42	13	39	40	18	38
All Ages	54	33	51	52	43	50	53	39	50

B. Habit Trained vs. Not Habit Trained

Age Group	Males			Females			Both Sexes		
	Habit Trained	Not Trained	Total	Habit Trained	Not Trained	Total	Habit Trained	Not Trained	Total
Less than 20	69	46	55	74	53	58	70	50	56
20 and over	43	23	37	39	40	39	41	35	38
All Ages	60	43	51	53	49	50	57	46	50

Table 4—Deaths From All Causes and From Respiratory Disease in 1956, 1957, and the First Quarter of 1958 by Month and by Quarter

Month	1956		1957		1958	
	Deaths Due to Respiratory Disease	Total Deaths	Deaths Due to Respiratory Disease	Total Deaths	Deaths Due to Respiratory Disease	Total Deaths
Jan.	5	7	10	13	3	8
Feb.	8	15	8	14	2	3
Mar.	3	7	3	4	5	7
Quarter	16	29	21	31	10	18
Apr.	4	6	2	6		
May	3	8	4	9		
June	5	11	7	11		
Quarter	12	25	13	26		
July	0	2	3	8		
Aug.	2	3	3	9		
Sept.	0	3	1	6		
Quarter	2	8	7	23		
Oct.	3	6	14	15		
Nov.	2	10	4	5		
Dec.	7	14	4	7		
Quarter	12	30	22	27		

most of these occurred in October. This was followed by a relative deficit in deaths for the first quarter of 1958.

Illness in the Hospital Staff—The data relating to illness in the hospital staff during the period of the epidemic in the patient population are not very reliable. It is based on reports of absence from work, rather than any consistent evaluation of individual illness. During this time, staff personnel were requested to present a certificate from their private physicians indicating the cause of illness. Thus the diagnoses are derived from many sources, were made during the course of a known epidemic of influenza, and were not ordinarily supported by laboratory tests.

Undoubtedly bias was introduced by persons who absented themselves from work without medical justification and by those who remained on duty despite varying degrees of clinical illness, but the effect of this bias on the attack rates cannot be evaluated. From the information available, however, the illness appeared in significant numbers in staff personnel of all occupational classes about the same time the incidence in patients began to rise. The peak for the employees was delayed about two weeks, occurring between the 21st and 27th of October.

The over-all attack rate for reported influenza-like illness in the staff was 41 per cent. The age distribution (Table 5) does not follow the pattern established by the patient group; the curve is bimodal, with peaks in the age groups 20-29 and over 60 years. Limitations of time did not permit more detailed examination of the outbreak among employees and no laboratory examinations were done.

Table 5—Age Distribution of Reported Cases of Influenza-Like Respiratory Illness Occurring in Hospital Employees

Age Group	Pop. at Risk	No. of Cases	Attack Rate in Per cent
Less than 20	114	23	20
20–29	189	117	62
30–39	224	92	41
40–49	279	85	31
50–59	142	61	43
60 and over	18	18	100
All Ages	966	396	41

Immunologic Findings

During the course of the epidemic, acute- and convalescent-phase serum specimens were collected by the hospital medical staff from eight patients with respiratory illness and were forwarded directly to our laboratory. Assays for complement-fixing antibody to the influenza A group of viruses, to which the Asian strains belong, showed that very marked rises of antibody titer had occurred during the course of the patient's illness (Table 6); in one patient the titer rose from <8 to 64, and in the remaining seven the titers rose from <8 to 128 or more. Screening tests for complement-fixing antibody to the influenza B virus were negative; the antibody levels in seven patients were <8, and in one patient the titer was 8. Hemagglutination-inhibition tests conducted against the A/Albany/55, A/Denver/57 and A/Japan/305/57 strains showed clearly that the respiratory illnesses were due to an influenza virus identical with, or closely related to, the prototype A/Japan/305/57 strain, and indicated that this virus was present in the hospital population.

One hundred and ninety serum specimens were collected on October 28 and November 4, 1957, from patients with or without reported illness during the course of the epidemic, the individuals having been selected from the random sample of the hospital population. The bleeding dates were about three weeks after the peak of the epidemic. Because

Table 6—Complement-Fixing and Hemagglutination-Inhibiting Antibody Levels for Influenza on Eight Paired Serum Specimens from Patients with Influenza-Like Respiratory Disease

Patient	Date Onset Illness	Date Blood Specimen Taken	Reciprocal of Antibody Titer by Complement-Fixing Influenza A	Influenza B	Hemagglutination-Inhibiting Albany/55	Denver/56	Jap/305/57
DB	10/7	10/8	<8	..	4	<4	<4
		10/24	128 or>	<8	<4	<4	16
RCh	10/7	10/8	<8	..	<4	<4	<4
		10/24	128 or>	<8	<4	<4	32
RCr	10/4	10/9*	<8	..	<4	<4	<4
		10/24	128 or>	<8	<4	<4	4
DD	10/7	10/9	<8	..	4	4	<4
		10/23	128 or>	<8	4	<4	8
RF	10/8	10/9	<8	..	16	8	<4
		10/23	128 or>	8	16	8	16
PM	10/4	10/9*	<8	..	8	<4	<4
		10/24	64	<8	<4	<4	16
DP	10/8	10/8	8	..	32 or>	<4	8
		10/24	128 or>	<8	64	<4	16
WO	10/8	10/8	<8	..	8	<4	4
		10/24	128 or>	<8	8	4	128 or>

* Date received in laboratory; date of bleeding not accurately known.

the number of cases decreased so sharply from the peak, the total number of cases occurring within ten days of the date the first blood specimens were drawn was only 72 out of the total of 1,391. Of the 190 specimens, 104 came from individuals reported to have had respiratory illness; only three of these 104 specimens were drawn from persons reported to have had respiratory illness within ten days prior to the bleeding. The following analyses treat the interval between the onset of illness and the time of bleeding as though it were a constant, since the error introduced by such an assumption cannot be very great.

All of the serums were tested for the presence of complement-fixing antibody to influenza A virus, the titration being carried to a serum dilution of 128. The distribution of the titers by sex and by whether or not the individual was reported ill is given in Table 7. Complement-fixing antibody titers of 64 and higher are considered as "diagnostic positives," i.e., as diagnostically significant of infection. Females showed a lower percentage of such "diagnostic positive" titers, both for those reported as ill and for those without reported illness, than did males. For both sexes combined, 82 per cent of those reported ill had a "diagnostic positive" titer and 56 per cent of those without illness had a similar titer. From these figures an estimate of the total infection rate can be made. Based on the results of the C-F test only, the infection rate was 70

per cent compared with a clinical attack rate of 57 per cent. If cases of reported illness without "diagnostic positive" antibody levels are added, the total infection rate was 80 per cent. These may be fairly stated as the minimum and maximum estimates of the total infections occurring in the hospital population during the period of the epidemic.

Discussion

With the rapid spread of Asian influenza over the United States during the late summer and autumn of 1957, there was great interest in all aspects of the transmission of this highly infectious respiratory disease. Many of the early outbreaks in military establishments and civilian groups indicated that attack rates of clinical illness as high as from 30 to 40 per cent might occur frequently. Occasional observations of attack rates considerably higher than this were made.

In a hospital for mentally retarded persons, an unusually high attack rate and a high case fatality rate might be expected, for the close association of the patients, especially where overcrowding is customary, the lack of appreciation of measures for personal hygiene, and the debilitated state of many of the patients all would favor such an expectation.

The difficulties attending clinical diagnosis in an institution such as this, in the course of an epidemic can readily be appreciated. Here, as in an outbreak of influenza A in an English hospital for mentally retarded[3]: "It is reasonably certain that all those for whom an illness was recorded were ill, though not necessarily with influenza, but it cannot be assumed that the absence of recorded illness indicated freedom from symptoms." Thus, in the Porterville outbreak, although the clinical attack rate (57 per cent) was very high, it is probably a low estimate. From the results of the serological survey of the hospital population at the end of the epidemic, the total infection rate was at least 70 per cent. The difference between the reported attack rate and the total infection rate must be composed of clinically inapparent infections and missed cases, but the precise contribution of each cannot be determined. If all of the difference is ascribed to the former then the

Table 7—Complement-Fixing Antibody Titers, by Sex and by Reported Illness, of a Selected Group of 190 Patients Drawn from the Population Sample

Classification of Patients	Reciprocal of C-F Antibody Titer						
	<8	8	16	32	64	128	All Titers
Males							
Reported ill	1	..	2	2	3	43	51
Not ill	2	1	4	5	11	15	38
All males	3	1	6	7	14	58	89
Females							
Reported ill	1	3	2	8	13	26	53
Not ill	13	5	3	5	10	12	48
All females	14	8	5	13	23	38	101
Both sexes							
Reported ill	2	3	4	10	16	69	104
Not ill	15	6	7	10	21	27	86
Total	17	9	11	20	37	96	190

ratio of recognized cases to inapparent infections is estimated to fall between 4:1 and 3:1.

Although the availability of fairly detailed information on each patient and a professional medical evaluation of each patient makes a study of an epidemic in such an institution very attractive, a significant difficulty is apparent. The very factors which operate to produce such a high attack rate of the disease may, in fact, operate so well that the pattern of spread within the institution may be washed out by the almost universal infection. It would seem that in the situation presented here, this was very nearly the case.

There are, however, two factors which seem definitely to have affected the distribution of the disease in this epidemic, viz., age and degree of contact with other persons.

A pattern of age selection similar to that observed here has also been noted in another reported outbreak of Asian influenza, and was contrasted with the age distributions seen in previous influenza A epidemics[4]; there is a suggestion that this age distribution may be characteristic of the disease and not merely of a particular population group attacked. The decrease in attack rates with age may be due, in part, to immunity acquired by virtue of prior experience with other strains of influenza A virus. No direct evidence can be adduced from these data to support this hypothesis, but no other explanation appears likely.

The different age pattern of illness observed among the employees is probably due to variation in degree of exposure, which in turn is related to age. However, the basic data on disease occurrence in this group are so *imprecise* that almost any speculation based on analysis of the information is useless.

The data indicate a significant association of high contact rates and high attack rates. Variation in contact rates has been considered here to be reflected by the activity classification of patient groups and by the degree of retardation of individual patients. Thus, the highest rates noted were in children permitted to attend school and the lowest rates in those persons confined to bed because of severe retardation or because of other illness. Additionally, it was noted that the groups of patients with the highest attack rates also showed the most rapid spread of the disease within the group. Individual patients were characterized as ambulatory or infirm, and habit trained or not habit trained, a characterization which is at least closely related to degree of contact with other persons. In these broad categories the same association was seen, in that the attack rate for the ambulatory patients exceeded that for the infirm and the attack rate for the habit trained was higher than that for persons not habit trained.

The high case fatality rate reported here is somewhere between five and 10 times the rate encountered in general population epidemics, depending on the number of deaths considered to represent an excess over the expected mortality for the institution. This is in general accord with experience reported elsewhere.[5] Many of these patients have very low resistance to infection and this, combined with conditions favoring the spread of disease, inevitably results in excess mortality. This mortality, however, probably represents a loss of a few months of life per death rather than a loss of life superimposed on the normal expectation, for the persons dying may have been those most likely to die of other causes in the next few months. Thus, the excess mortality in October was partially balanced by a relative deficit in the months following.

Summary

A severe outbreak of respiratory disease, attributable by laboratory tests to

Asian-strain influenza virus, occurred at a hospital for mentally retarded persons at Porterville, Calif., in October, 1957. There were 1,391 cases with 15 deaths out of 2,456 resident patients. This gives a clinical attack rate of 57 per cent and a case fatality rate of 10.8 per 1,000. Attack rates were shown to vary according to the contact rate of the patients, with those allowed to attend school having the highest rate and those confined to bed, the lowest. From the results of serological examination of serums from a sample of the hospital population, the clinical attack rate understated the total infection rate, which was estimated as between 70 and 80 per cent. The ratio of apparent to subclinical infections was estimated as about 3:1.

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Deadline on Resolutions

Proposed resolutions must reach the chairman of the Resolutions Committee by August 19 if they are to be considered for presentation to the Governing Council during the Atlantic City Annual Meeting.

As adopted by the Governing Council in St. Louis (A.J.P.H., 49, 2:269, 1959), "Any resolution classified as 'policy' must be received in the Association office at least 60 days prior to the first Governing Council session of the Annual Meeting at which the resolution is to be considered." Proposed resolutions may be accepted from a member of the Governing Council, an Affiliated Society or Branch, a section or a section resolutions committee, an Association Standing or Program Area Committee speaking through an officer. Members of the Association should submit resolutions through one of these channels.

The Committee on Resolutions requests as a matter of convenience that resolutions be submitted in the usual Association style (see A.J.P.H., 49, 2:120, 1959). In addition they should be typed in doube space, preferably with sufficient copies for each of the nine members.

Please send all proposed resolutions before August 19 to: Dr. Hugh R. Leavell, Harvard School of Public Health, 55 Shattuck St., Boston 5, Mass., or Resolutions Committee, American Public Health Association, 1790 Broadway, New York 19, N. Y.

Here is an interesting preliminary account of a project for cancer research in a local health department. Besides broaching fascinating problems in the relationship of the environment to the occurrence of cancer, it also raises pertinent questions concerning research by official health agencies.

A PROJECT FOR STUDYING THE GEOGRAPHIC DISTRIBUTION OF CANCER WITHIN A SINGLE COUNTY AS RELATED TO ENVIRONMENTAL FACTORS

Pope A. Lawrence, M.S., and William Y. Chen, M. D.

History and Development

THIS paper describes in general terms an example of research being carried on cooperatively by the Washington County Health Department and the National Cancer Institute of the Public Health Service. This project, which is known as the Environmental Cancer Field Research Project, is centered in Hagerstown, Md. It was initiated by Dr. Ross Cameron, deputy state health officer and county health officer for Washington County. A little over four years ago Dr. Cameron came to the National Cancer Institute and disclosed to the Field Investigations and Demonstrations Branch the results of his observations, based on several years of intensive and critical study of the cancer mortality records which are routinely received and filed in his office. He had sorted and classified the death records (which were complete back to 1898), and had gained the impression that over a long period of years a disproportionate number of cancer deaths had occurred in certain areas within the county. He had calculated crude cancer death rates and had found striking variations. He asked if the Cancer Institute would be interested and could assist in checking his observations, and, if verified, in trying to discover rational explanations for the observed variations.

Dr. Cameron's timing was fortunate in that it coincided with some interesting observations which the Environmental Field Studies Section was making about geographic distribution of cancer among all counties within the United States. Resources of the National Cancer Institute were joined with Dr. Cameron's to see what could be done with his data.

The first move was to send a biometrician and a statistical clerk to test the quality of the data. The records appeared to be excellent and, furthermore, because of some 20 years of prior study by various Public Health Service investigations, a surprising amount of additional information was already available about the county to show that its population was extremely stable. The only major drawback was that the entire population of the county numbered only about 80,000. About half of the people lived in Hagerstown and the other half was distributed over some 465 square miles of rural country. This meant working with small numbers, and the chance of significant observations or discoveries, particularly with a disease such as cancer, was not as good as would be desirable. In spite of the relatively small population involved, however, it was decided to explore certain other factors which might contribute toward tenable conclusions. With this in view, a study was made of the different election districts as they were the smallest geographical units for which accurate records had been kept.

Copies of death certificates with cancer mentioned were collected from Dr. Cameron's file by a statistical clerk familiar with terminology, so that no cases of malignancy would be missed. Certificates were coded as to residence in two ways: the election district in which the decedents had resided at the time of death; and whether the residence was in the city of Hagerstown or outside. Rural residences were coded by a statistical clerk with the assistance of a health department clerk who was a longtime resident of the county. All residences which could not easily and with certainty be allocated to the proper election district were checked in the field by another health department employee.

All these death certificates were then sent to the National Office of Vital Statistics, where the causes of death were classified and coded in a standardized fashion, in order that the results might be comparable with published vital statistics. In view of the long period of years covered, the underlying causes of death were classified according to the Fifth Revision of the International List for the sake of comparability from decade to decade, and recorded in Sixth Revision code numbers for convenience.

Census data for 1930, 1940, and 1950 were used as population bases for computation of rates. Age-specific and age-adjusted mortality rates were computed for each decade centered around the three census years, for males and females separately and for each election district, and for the city of Hagerstown as a separate entity. Since the nonwhite population of Washington County is rather small, the white totals alone were used. The rates were adjusted for age on the basis of the 1950 population of the continental United States. Thus, rates became available for each sex and for each election district, with age eliminated as a factor.

The rates thus obtained appeared to be internally consistent, and agreed well with those obtained in a survey of the State of Iowa. The Hagerstown rates agreed well with the Iowa urban rates while the rates for the remainder of the county agreed with the Iowa rural rates. We knew then that we were not dealing with a county having anomalous cancer mortality rates.

As is true of other studies of cancer mortality within cities or counties, wide variations were found from one election district to another. The highest district, depending on the sex and decade compared, showed rates two to five times greater than the lowest district. Because of the small population in some of the election districts and correspondingly small number of cancer deaths, the rates fluctuate to some extent from decade to decade. However, looking at all three decades, one can obtain a reasonably

consistent picture for a given district. Furthermore, the picture seemed to agree surprisingly well with the pattern already observed by the health officer.

In further exploration, various records which might be useful were sought and found almost everywhere. Use was made of old property transition records, wills and deeds, old maps, family histories, family Bibles, microfilmed census enumerations, and many other sources of information.

In stepwise exploratory fashion, under the enthusiastic coaxing of an astute county health officer, the Environmental Field Studies Section of the National Cancer Institute has now become immersed in this project. To some, the project seems to be of enormous proportions, but it also has potentialities never before appreciated.

Today, the epidemiological work is being pressed vigorously, following a house-to-house interview program completed in three election districts last summer.

While the biometrical activities were in progress, environmental specialists were busy probing into the Washington County potentialities and it seemed that each probe brought up challenging results. For example, one of the chemists, who happens to be interested and oriented in agronomy, began to explore the Department of Agriculture records to see what additional data in his field might already exist about Washington County and its various election districts. First, he obtained a beautiful soils map, prepared in 1917, and subsequently discovered that a new soils map, showing greater detail, was almost ready for publication. He also found that since 1938, varied programs of the Federal and State Agriculture Departments had required aerial photographs of the county, and furthermore, that every one of the 1,900 farms in the county had already been mapped and that individual reports were available showing extremely detailed soil classifications for each farm. Soon, stacks of aerial photographs and soils maps accumulated in the Institute office.

Another staff chemist who has a great variety of ancillary talents, including a bent toward geology, soon found some excellent geologic maps which show in surprising detail the various geological formations which occur in the county. It was discovered that Washington County, which lies across a peculiar pinch in the Appalachian Mountain chain, contains outcrops of vertically folded rocks which expose about two billion years of geologic time. It was realized that here was an opportunity to examine the mortality experience of a human population living for several generations right on top of a number of quite different and clearly defined geological formations.

A little exploration with a sensitive scintillation meter revealed that within Washington County one could measure 10-fold differences in gamma radiation background, and interestingly enough, the relatively small number of higher background readings seemed to fall in line with election districts showing the elevated cancer rates as calculated by the biometricians. This was of special interest because of possible correlation with other field investigations of the National Cancer Institute which involve long-range studies of the cancer experience among workers exposed to various levels of radioactivity.

Coincident with the foregoing studies, the U. S. Geological Survey made an air-borne background radiation survey by means of large air-borne scintillation crystal detectors connected through appropriate amplifiers to recording instruments. The plane, which was normally used for doing exploration work for commercial deposits of uranium and thorium, flew at 500 feet elevation along parallel flight lines spaced one-half mile apart. In two days it was able to cover all but the extreme western end of the

county in which rough terrain made constant altitude flying impracticable. The plane carried a camera which produced a continuous strip photograph of the ground monitored, and the film strip was synchronized, by means of ground check points, with the radiation background recording instruments. There was also a radar altimeter in the plane which could automatically throw in to the recording instruments a correction factor to account for minor deviations from the 500 foot elevation which the pilot tried to maintain at all times.

The air-borne background data as finally presented, make it possible to locate peaks and valleys in the measured background radiation directly on large scale maps. These maps show many topographical features as well as the location of individual houses.

Needless to say, systematic analysis of the vast amount of data, collected originally for different purposes, requires considerable time, specially trained persons, and working space. The existence of an opportunity to compare geological, ecological, and background radioactivity data with pertinent cancer mortality data, however, furnished sufficient stimulus for taking further exploratory steps.

A Place to Work

In the natural sequence of collecting a few field samples of rocks, soils, and plants for chemical analysis, the health officer suddenly advanced the suggestion that perhaps a modest amount of space might be appropriate for field headquarters in Hagerstown. This seemed reasonable, but what came next was a wholly unexpected and pleasant revelation. A local philanthropist, who had already built the modern County Health Department Building, suggested that he would like to construct at his own expense another building to suit the needs of environmental cancer research. His unusual offer was accepted and on November 14, 1958, the new three-storied "Coffman Research Center," costing about a quarter of a million dollars, was dedicated as a gift to the Washington County Health Department. Guest privileges have been extended to the National Cancer Institute, which will staff, equip, and operate this facility, for at least the next five years, as an epidemiological field research laboratory. It is understood that this is unique in being the first facility of its kind anywhere.

In this building are now being assembled the best chemical and physical laboratory equipment for what is considered to be, at this point in time, appropriate analytical work to measure environmental factors pertinent to the human "spontaneous cancer" phenomena. The laboratory is designed to analyze large numbers of samples of soil, rocks, water, and even air to be collected in systematic fashion from all the election districts within the county. Measurements will include not only radiometric factors, but also analyses for certain elements in trace amounts which we think might be important in cancer research. Particular attention will be given to findings of arsenic, chromium, zinc, copper, nickel, lead, molybdenum, and to such internal alpha-emitting substances as thorium, radium, and uranium. Obviously this is a tremendous undertaking, which will not only place a heavy tax on ingenuity but will require skills and talents never before contemplated as associated with formal public health work.

While data for publication are as yet insufficient, news of this project has, nevertheless, become widely known through person-to-person contacts, so that professional personnel with talents and skills necessary in scientific disciplines and programs other than public health are today coming forward and asking "How can we help?" Among the persons who have looked into this project are geologists with all sorts of specialized

training, rock experts, soils morphologists, paleontologists, mineralogists, and geo-botanists. There are agriculturists, radio-chemists, and physicists, veterinarians, and several kinds of biologists. From their varied viewpoints, these people seem to foresee something exciting with which they would like to work.

The astounding development to us is the expressed eagerness of these highly trained scientists to submerge their own professional interests of the moment to bring to a common point of focus their talents, energies, and in some cases even resources, in a united effort toward finding out at this particularly critical point in time facts about natural phenomena which seem to influence human disease. This attitude seems to be spurred by a deep-seated hope that if one can discover rational explanations for occurrence of "spontaneous human cancer," the stage might be set for discovery of ways in which the disease might be controlled.

Implications, Present and Future

At the moment, it is difficult to keep the environmental investigations from over-running the epidemiological phase of this project, but it is realized that this must be done at all costs. Engineers, chemists, and physicists can measure a multitude of things in the environment, but without the carefully assembled human data for intelligent comparison the environmental measurements mean little. Determination, therefore, has been focused upon maintenance of emphasis upon the epidemiological side of this project as the spearhead, pointing the way for the environmental phases to follow.

Along with the stimulation for creative thinking and multidisciplined scientific investigation which this project in Washington County affords, serious risks are recognized. There is the continuing hazard of dispersion of effort as one is tempted to be diverted into exciting and unexplored paths which appear every day. Proved methods for epidemiological research on such a "micro" scale are not yet established. In a sense this project is based largely upon faith and hope, rather than upon the carefully disciplined logical reasoning and development of hypotheses which advocates of the "scientific method" believe should always precede sound experimental work. This is a hazard of great concern, yet it is one which has been openly assumed in order to exploit the unique opportunities which have come so rapidly.

It is possible that efforts in this project may well supply fresh and properly detailed data with which to reevaluate certain ancient hypotheses that cancer may be related to environmental factors. An almost ubiquitous disease cutting across the entire biological spectrum would certainly seem to be related to some almost ubiquitous factors which might exist in the environment.

Search of the ancient and modern literature on this point has revealed many stimulating observations which are beyond the scope of this discussion. However, those familiar with English medical literature of about two generations ago will recall the fashionable burst of interest in "cancer houses" and "cancer districts" in England as well as elsewhere. One will also recall the publications in 1912 of the great statistician, Karl Pearson,[1] and his fantastically high chi squares which convinced him that certain peculiar agglomerations of cancer cases simply could not be accounted for by chance. Then, only two years later, in 1914, the whole notion seemed to be exquisitely exploded and laid to rest forever in an apparently well conducted study reported in the 12th annual report of the Imperial Cancer Research Fund.[2] Subsequent events, however, have called for a reevaluation of the conclusions of this report.

It seems that most of the early inves-

tigations were vulnerable to successful attack because they did not take appropriate account of age, time periods, or quality of diagnosis. Furthermore, they seemed to be built around a concept that some infectious bacterial agent was responsible for cancer. Very few facts were produced in support of such a concept, so that the concept was rejected, although the validity of certain associated observations is recognized.

Today, however, with the advent of new concepts and knowledge about viruses, ionizing radiations, chemical carcinogens, latent periods, interplay of enzymes and metals influencing vital functions within single cells, all combined with modern tools for measurement and for rapid mass-data processing, the old observations and ideas are being reevaluated. Such investigations are being pursued today in England, Sweden, the Netherlands, India, Denmark, Upstate New York, and in Washington County, Md. It does not seem particularly important to prove whether or not there is such a thing as a "cancer house" or a "cancer district." The important thing, for us, at least, is to describe as accurately as we can the conditions under which cancer is disseminated within a definite time period among a definable human population.

It is believed that one will not go far wrong in this investigation if he continually strives to do the necessary and humble job of accurate, systematic description of events which can be documented with unbiased evidence. And the evidence relative to Washington County, which has been uncovered after lying dormant in a variety of governmental offices and elsewhere, is truly amazing.

It would appear that a development, no less amazing, is that by sheer luck, accident, serendipity, or whatever word might be appropriate, a touchstone has been discovered which calls forth splendidly unselfish action from a host of serious people to unite in carrying out an objective of a county health department. The experiences herein related may conceivably pose a challenge to other local health departments to undertake constructive research.

Dr. Alexander Gilliam, head of the Epidemiology Section of our branch at the National Cancer Institute made a most fitting remark last spring in his Sundwall Lecture at the University of Michigan,[3] when he said:

> "For the so-called chronic diseases" (and he was speaking of cancer) "no one can foresee which scientific discipline will provide that knowledge which is basic to an understanding of their dissemination. It can be said with certainty, however, that no theory of these mechanisms will be acceptable unless it fits the facts of distribution of disease among people. It is high time that the Public Health professions get along with the job that is rightly theirs, to determine when, and among what kinds of people these diseases are distributed."

There is reason to believe that too many people today are obsessed with a notion that modern research requires people with "long hair and a fat pocketbook." They also seem to believe that good ideas for fruitful research simply cannot spring from a local level up, but rather that such ideas must be handed down by some omnipotent hierarchy along with a fat grant in funds. Nothing could be further from the truth.

It is stimulating to see a health officer with the courage to push his own observations and ideas from the ground up, as Dr. Cameron has done. In so doing, his ideas and opportunities for investigating them have been amplified many fold. His example demonstrates beyond any doubt that genuine and worth-while research in a local health department is not only possible but is actually being done.

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This paper was presented before a Joint Session of the Epidemiology, Health Officers, and Statistics Sections of the American Public Health Association at the Eighty-Sixth Annual Meeting in St. Louis, Mo., October 28, 1958.

Food Additives Amendment Rules

Regulations setting up definitions, procedures, and interpretive policy to be followed under the Food Additives Amendment to the federal Food, Drug, and Cosmetic Act were published by the Food and Drug Administration in the Federal Register of March 28, 1959, at which date they became effective.

These were first published as proposed regulations in the Federal Register of December 9, 1958, for comment. The comments were considered in preparation of the final rules. Covered are procedures for submitting petitions for additive uses, criteria to be applied in determining safety of additives, rules for public hearings when controversies arise, and related matters.

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Journal of Public Health

EDITORIALS

A Jubilee for Canadian Public Health

This year the Canadian Public Health Association celebrates its 50th anniversary. In June it will hold its annual meeting in Montreal under the presidency of Dr. Jules Gilbert, who is well known to American public health workers. This occasion will be the focal point of the year's celebration and the place has been felicitously chosen, for the first annual meeting of the association was held at Montreal in September, 1911.

Fifty years is a long time in the life of any association and the Canadian Public Health Association can look back over this period with the pride of accomplishment. These 50 years represent the development of modern public health in Canada and in this process the association and its journal have had a significant part. The Canadian Public Health Association today represents the faith and work of several generations of public health workers, some of whom did not live to see their aims achieved. The pioneer in this endeavor was Edward Playter, a medical practitioner, who in 1874 undertook at his own expense to publish a public health journal. This was one of the earliest periodicals in the field of public health. With several interruptions, and under various names, this publication continued to appear until 1892 when it was finally discontinued. Concurrently, Dr. Playter endeavored to create a Canadian health association. Several organizations were formed but none survived for any length of time.

The present Canadian Public Health Association was not incorporated until 1910. Despite various ups and downs, the association has endeavored to achieve the best in public health action on local, provincial, and federal levels. Thus, it has been able to carry out the objectives visualized by Playter the pioneer and to deal with newer problems as they have arisen. On this happy occasion we salute our colleagues of Canada, and we offer our felicitations to the Canadian Public Health Association and the Canadian Journal of Public Health for the next 50 years.

Unemployment: A Health Problem of the Community

A disease of the body politic which seemed in large measure to have been eliminated in the United States since 1941 has now returned with full force. It is widespread; its effects cannot be limited to individuals; and it

threatens to become chronic. This disease is unemployment. In recent years it had been pushed into the background, but today it is back as a major threat to the mental and physical well-being of a working family.

The postwar outbreak has its own etiology. The effects are familiar, but the causes have novel embellishments. Recent figures indicate that the labor force employed today in producing raw materials and finished goods is no larger than the number so employed in 1940, when the total unit volume of production was much smaller. While production and the working force have been growing, surplus labor has moved into the Armed Forces, into service industries, or into retirement or unemployment.

The number of unemployed soared to about five million in the brief economic setback of 1957 and has not diminished in the present period of ongoing recovery. Employers reduced the working force in 1957 to save operating costs and they could reduce it further today without loss of production. In many industries productivity per employee has reached such a high level that to raise wages on the basis of productivity would mean paying as high as $10.00 per hour.

The process by which workers are displaced is quite as significant as the fact of their displacement. Cost cutting as a factor in displacement has been mentioned. Another economic consideration is that it is frequently less expensive to build an entirely new plant, in order to save production costs, than to remodel the old. Moreover, and here the socio-psychological element reinforces the economic, employers find that a brand new working force is far less resistant to newer ways of doing things than the old hands. As a result, investment in new machinery to be operated by electronic tubes and punch cards leads not only to abandonment of the old site, the old town, but most important of all—the old employees.

For the industrial worker and his family, progress in productive ingenuity poses a threat—the threat of unemployment and all its consequences. But not only the individual family is affected. Just as when a pebble is dropped into water and the ripples spread farther and farther, so when a family is affected by unemployment the consequences are of concern to the entire community. The acute case of unemployment today may be the chronic problem family of tomorrow. Moreover, as this family drops out of the market, no longer able to buy the goods and services offered by its neighbors, they too are threatened. Finally, unemployment goes hand in hand with mental distress and a feeling of helplessness, with cold, hunger and illness, and with family disorganization. Thus, unemployment becomes a community problem, a problem encountered by health workers, welfare workers, and others whose job it is to help people meet and deal with basic needs.

Unemployment can be dealt with by various methods: reorganizing the community for new economic enterprise which is needed to satisfy the world's unfulfilled needs, by retraining the worker for new tasks, and by planning in advance to deal with the consequences of industrial innovation. Meanwhile, the public health worker must handle the problem as it exists today and endeavor to recognize and to ameliorate the consequence of a serious social disease.

Lemuel Shattuck (1793-1859): Prophet of American Public Health

IN 1850 the Massachusetts Sanitary Commission issued a Report of a General Plan for the Promotion of Public and Personal Health . . . relating to a sanitary survey of the state. The report was the work of Lemuel Shattuck, a bookseller and publisher of Boston, who died on January 17, 1859.

Shattuck was born at Ashby, Mass., on October 15, 1793. Originally a schoolmaster, he taught at Troy and Albany, N. Y., and at Detroit, Mich. Discontent led him eastward again and he settled in Boston. Shattuck became interested in community affairs and when he retired from business at the age of 46 he devoted the remainder of his life to various public endeavors. For example, when a member of the school committee in Concord, Mass., he reorganized the public school system of the town. Through an interest in genealogy, he recognized the need for accurate vital statistics; he implemented this recognition by stimulating the organization of the American Statistical Society in 1839 and by securing in 1842 the passage of a law in Massachusetts initiating state-wide registration of vital statistics. In 1845 Shattuck issued a "Census of Boston," which is not only a prelude to his better-known report of 1850, but is worthy of consideration in its own right because it provided a solid foundation for the accurate recording of statistics in the United States.

Appalled by the high general mortality and the shocking infant and maternal mortality revealed by the census, Shattuck engineered the appointment of a commission to make a sanitary survey of Massachusetts. Shattuck was chairman and wrote the report of the commission. In his views he was stimulated and influenced by the activities and ideas of contemporary British and French sanitary reformers. Though it had no practical effect upon its appearance, the Shattuck report is today recognized as an important landmark in the evolution of community health action.

It outlined a basis for sound public health organization and made recommendations that to a large extent have been achieved in the intervening hundred years. Shattuck recommended the establishment of a state health department and local boards of health in each town. Furthermore, he urged sanitary surveys of particular urban communities and other localities. Among his recommendations in vital statistics are a decennial census, uniform nomenclature for causes of disease and death, and collection of data by age, sex, race, occupation, economic status, and locality. Environmental sanitation, control of food and drugs, and communicable disease control are considered at length in the report. Health education was given a great deal of attention, and well child care, the health of school children, and mental health are all touched on. The farsighted character of the report is indicated by Shattuck's proposals on alcoholism, smoke control, town planning, and the teaching of preventive medicine in medical schools.

The appeal of Lemuel Shattuck's report to the modern public health worker is understandable. In very large measure he forecast the pattern of public health organization and practice which developed and has endured in the United States over the past hundred years. We know next to nothing of Shattuck the man, nor do we know what his plan of organization would have been like in practice, for it was not implemented. Shattuck endeavored to have the major recommendations of the report enacted into law, but without success. He died in 1859 and it was left to others to take effective action a decade later. The great and abiding achievement of Shattuck was to take ideas and practices of his predecessors and contemporaries, to adapt them to the American scene within a broad and coherent pattern of organization, and in essence to formulate a complete health policy. He did not reach the Promised Land, but he saw it from afar and described it for those who were to follow him. For this accomplishment we hail Lemuel Shattuck in this centennial year of his death.

TO THE EDITOR

Re: Combined Poliomyelitis, Diphtheria, Pertussis, and Tetanus Prophylactics

During a meeting of the Committee on Evaluation of Multiple Antigens, Epidemiology Section, APHA, in Ann Arbor, Mich., on March 27, 1959, one of the subjects under discussion concerned multiple antigen preparations for simultaneous vaccination against diphtheria, pertussis, tentanus, and poliomyelitis. Such preparations have been released recently by the National Institutes of Health for use in this country; it is noted that they are also in use in Canada and under preparation in some European countries.

For a number of years this committee has been deeply interested in this combination of multiple antigens, from the standpoint of efficacy and safety and also the epidemiologic and sociologic implications of its use. The committee is concerned with planning for basic studies and several members are involved in the study of experimental lots.

The committee recommends the use of a multiple antigen preparation containing diphtheria and tetanus toxoids and pertussis and poliomyelitis vaccine. The administrative and economic advantages of simultaneous vaccination against several diseases are obvious; a particular advantage is that more individuals are assured vaccination with a multiple antigen preparation than with individual antigens. Reported reactions following the injection of the four-antigen vaccine have been no more than might be expected following the triple vaccine in common use. As to the efficacy of this combination, experience indicates that all the antigenic components are individually effective. There is no evidence of their interference with each other; in fact, there is some evidence of a synergistic effect.

Recent studies of the use of poliomyelitis vaccine indicate a need for increased use of poliomyelitis vaccine in preschool children and the incidence of poliomyelitis in 1958 bears this out. The combination of poliomyelitis vaccine with the three "standard antigens" for early childhood vaccination would help toward filling the present need in poliomyelitis vaccination.

Any recommendation concerning types of products and vaccination procedures for active immunization necessarily has only current validity. It is recognized that the whole problem of schedule dosage requires continuing investigation. The results of current practice require evaluation and reevaluation in the light of developing knowledge and better understanding of the requirements of particular communities in relation to their immunologic status.

In spite of the deficiency in knowledge of the most efficient use of this combined product, the committee feels that widespread use of this product has urgency that outweighs this disadvantage.

JOHANNES IPSEN, M.D., M.P.H.
Department of Public Health, Institute of Laboratories, Commonwealth of Massachusetts, Jamaica Plain, Mass., and Chairman, Committee on Evaluation of Multiple Antigens, Epidemiology Section, APHA

April 8, 1959

EDUCATIONAL QUALIFICATIONS OF EXECUTIVES OF VOLUNTARY HEALTH ORGANIZATIONS AND HEALTH COUNCILS

This report, like all other statements of the Committee on Professional Education on professional and technical qualifications in public health, is subject to periodic revision in order that it may be kept abreast of the best thought. The committee recognizes that it is impracticable to insist that all present incumbents in this category of health workers comply with the recommended requirements at this time. Modification may temporarily be necessary to allow practical field experience under competent supervision to substitute in some measure for formal education.

I. Definition

A VOLUNTARY HEALTH association is made up of public-spirited citizens who have organized formally for the purpose of improving the health of the public. One such association may concentrate on a specific health problem as related to more general health needs, whereas another may be concerned with the health situation as a whole. It usually operates independently of governmental health agencies, though in close cooperation with them.

A health council is composed of voluntary and governmental health and welfare agencies, representatives of civic and professional organizations, and individual citizens, organized to coordinate their respective programs and to cooperate in community planning for improving the health of the public. Health councils may also be called health divisions, committees of health and welfare councils, community councils, etc.

The chief executive officer of a voluntary health association or of a health council usually has the title of executive director, executive secretary, managing director, or director.

II. General Scope of Health Organizations and Councils

Voluntary health agencies include national, state, and local organizations. Most, but not all, state and local agencies are affiliated with one or another of the 25 or more national voluntary health agencies. Health councils are similarly organized at all three levels, but are not based on direct affiliation.

In 1957 there were in the United States more than 20,000 national, state, and local voluntary health associations, of which nearly 5,000 were devoted to

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This report is a revision of the Report on the Educational Qualifications of Executives of Voluntary Health Associations, published in the American Journal of Public Health in May, 1945, and is intended to supersede the earlier report.

the broad aspects of health problems. Approximately 700 are visiting nurse associations, or combinations of official and voluntary nursing organizations. Red Cross chapters account for an additional 3,700 units, while over 700 are health councils or health divisions of community health and welfare councils.

Most of the remaining 15,000 organizations are devoted to special problems of health or illness, such as cancer, diseases of the heart, tuberculosis and other respiratory diseases, infantile paralysis, mental health, arthritis, muscular dystrophy and other crippling conditions, various diseases of the central nervous system, alcoholism, maternal health, social hygiene, planned parenthood, conservation of hearing, prevention of blindness, etc.

Of the 20,000 agencies, about 5,000 employ full-time executives. Most of the other organizations employ part-time executives or use state or national field staff to guide the activities of the volunteers who carry out the programs.

A number of voluntary health associations are devoting increased attention to the general problems of community health in addition to programs directed to problems of specific diseases or conditions. Their interest is based upon a recognition of the interrelationships of many health problems and of the need for public and private facilities and services to bring to the people of the community the benefits of current medical and health knowledge. A broad program that includes many aspects of community health is frequently planned and sponsored by a health council.

However, there has been a definite trend toward national independent special disease or disability-centered organizations and a corresponding growth of affiliated local associations. This is a reflection of increased public interest in questions of health and illness and of citizen willingness to accept responsibility for meeting these problems. This trend intensifies the need for joint planning and for integrating the activities of these new organizations with those of other health groups.

III. Functions of Voluntary Health Organizations and the Duties of Their Executives

A. *Functions of Voluntary Health Associations and Health Councils*

The functions of voluntary health associations vary in detail at the national, state, and local levels, depending in part upon the organizational pattern of the national organization and its local affiliates. The following description, however, approximates the general responsibilities at all three levels of operation.

A voluntary health agency seeks to gain new knowledge, not only in its particular fields of interest, but also in the way the community functions. It tries to see that knowledge is applied to improve the health of individuals and to help solve community health problems, implemented largely through programs in which members of the community participate. Some agencies provide direct services for patients. A voluntary health agency endeavors to identify and study special health problems and to support research on these problems. It stimulates experiments and demonstration or pilot programs, which may be in the nature of administrative research or which may serve to apply the results of research to the service of the community. A demonstration program generally involves other public and private agencies and citizen groups and has limited duration until the activity is accepted as a community responsibility. Voluntary health agencies are in a unique position to supplement without duplicating the official agency's program.

Whether a voluntary agency sponsors a demonstration activity or supplements the program of an official agency, a con-

tinuous program audit is required. Each agency affected by the program should take part in the audit to determine what services should be undertaken, maintained, modified, or discontinued, and what agencies should provide a continuous service. Voluntary agencies involve citizens who become informed about their own and their community's health problems and who aid in arousing interest among other members of the community in solving these health problems.

The health council plays a unique role in providing an opportunity for many groups and individuals to discuss all the health problems of the community. It seeks to involve representatives of all official and voluntary health agencies, professional and other groups, and individual citizens in the study of health problems and their solutions. It offers to a problem-centered health agency an opportunity to share in a planning program which pools the experience of all groups for the benefit of the entire community.

B. *Duties of Executives*

Some of the duties listed here apply to executives of national, state, and local organizations; others may apply chiefly to local executives. Essentially the executive's duty is to carry out the program of an organization and to help the community understand its health problems and take steps toward a solution. To accomplish this:

1. He works with the board of directors or governing body to help set the course of the agency and also obtains the collaboration of additional citizens for working committees.
2. He keeps himself, committees, and board of directors informed of the health problems and resources with which the agency is concerned.
3. He works closely with other health and welfare agencies to help develop a comprehensive community program without duplication and with a minimum of gaps.
4. He utilizes the guidance and resources of national, state, and local agencies, both official and voluntary, and of community planning bodies to help implement the program of his own organization.
5. He keeps in close touch with and works with all appropriate community organizations, relating the agency's program to their interests, and uses all channels of communication to reach the people for purposes of providing both services and information.
6. He recruits, trains, and supervises workers for volunteer service and for the staff of his organization.
7. He plans fund-raising activities with the board of directors, develops a budget for consideration by the board, and administers the funds within this budget.
8. He makes certain all the details of management are efficiently handled and accepts responsibility for preparing for his board periodic reports to the community on the agency's operations, including a financial accounting as well as a review of program accomplishments.

The health council executive, in addition, brings together varied community forces for health planning and is available as consultant to organizations and agencies to aid them in developing a more effective total community program. He helps governmental and voluntary agencies to coordinate their activities.

IV. Knowledge, Skills, and Personal Qualities

The programs of voluntary health organizations are literally "of the people, by the people, and for the people"; they involve many individuals, and sometimes the entire community, in program development, fund raising, and the administration of services. An important part of a program is to gain general public acceptance of services and information available to individuals or groups. For this reason the following knowledge, skills, and personal qualities are essential:

A. *Knowledge*

1. Knowledge of the processes by which communities are organized and of the manner in which people and organizations achieve their objectives within our type of government.

2. Knowledge of the processes by which groups of people reach decisions and the role of individuals in group discussion.

3. Knowledge and understanding of professional ethics and an appreciation of undertones in professional groups.

4. Knowledge of the structure and functions of government and of the processes of legislation, particularly as these affect community health and welfare programs.

5. Knowledge of methods of administration and supervision, in order to insure that board and committee members, volunteers, and staff, representing a variety of disciplines, work effectively as a team.

(In addition, the executive should have substantial, though not necessarily so extensive, background in two other areas.)

6. Knowledge of disease in a broad sense, with particular attention to chronic illnesses, and social implications of disease, in regard to both the individual and the community.

7. Knowledge of principles of education and methods and media of mass communication and public information in order to carry out the agency's obligation to inform, interpret, and educate.

B. *Skills and Abilities*

1. Skill in carrying out the duties outlined previously.

2. Ability to keep all elements of program and administration functioning smoothly in proper relation to each other.

3. Ability to organize and conduct continuous programs of public education and frequently of community services and to arouse public opinion in support of particular health objectives.

4. Ability to express himself clearly through the spoken and written word.

C. *Personal Qualities*

The successful executive must like and respect people and be able to work well with all kinds of persons, individually and collectively. He must have the presence and persuasiveness to represent his agency effectively; the wisdom and perspective to create and adapt policies that will meet local needs; the insight to see all sides of a problem; the sense of proportion that enables him to keep track of details without losing sight of purposes and goals; and the perseverance to reach these goals.

He must be a leader with imagination and initiative who develops leadership in others and who shares responsibility by developing effective teamwork.

V. Educational Background and Experience

A. *Undergraduate Preparation*

A baccalaureate degree should be considered as minimum preparation for these positions. A desirable undergraduate curriculum should provide a broad liberal education, including the social and biological sciences. Courses in the humanities, education, and administration would be helpful.

B. *Graduate Education*

Graduate education is desirable in such fields as public administration, public health, and community organization or administrative aspects of social work. If the executive of a national or state agency, or of a large local agency, has responsibility for public health programming or planning, it is desirable that he have graduate education in public health.

Graduate education for an executive responsible for public health programming or planning should include courses in community organization, group discussion, statistics, social research, medical care administration, and public health education or public relations. Courses in principles of public health and social work, in public health law and social legislation, and in social aspects of medicine and illness would also be valuable.

In certain executive positions specific basic professional training may be required for adequate fulfillment of the job responsibilities.

C. *Experience*

Experience must be added to education as a necessary part of the training for any important executive position,

some of which may be gained by a period of apprenticeship or internship as part of graduate education. The first positions held after academic preparation should provide for a definite period of inservice training. Experience and increasing responsibility in the administration and direction of voluntary agency programs is desirable for the executive of any sizable association. Preparation for major executive responsibility should include at least one year of graduate education, plus a minimum of three months supervised field training.

The professional competence and accomplishments of many persons now serving as executives of voluntary health agencies who have not had formal postgraduate education are recognized. Persons who have achieved success during considerable full-time experience in an established voluntary health or community planning agency should be considered eligible for positions of greater responsibility in the same or another similar agency. Full executive responsibility should be given only after the candidate has acquired additional experience under supervision.

VI. Type of Institution Best Fitted to Give This Training

Although there are different degrees of emphasis between various aspects of the daily work of health officers and voluntary health agency executives, their responsibility to the community is similar. The basic need for both is public health training, with special emphasis in that of the voluntary agency executive on community organization and certain aspects of public administration. The ideal curriculum would be developed in a university with access to graduate schools in the fields of public administration, public health, and social work, where a core faculty exists representing the various disciplines.

An institution offering a curriculum for training voluntary health agency personnel should have ready access to well organized health and welfare departments and to voluntary health associations for supervised field training.

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The Committee on Professional Education expresses grateful appreciation to the Subcommittee on Educational Qualifications of Executives of Voluntary Health Organizations and Health Councils which assisted with the preparation of this report. This subcommittee consists of:

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LABORATORY SECTION ABSTRACTS

At each Annual Meeting so many papers are read at the several sessions of the Laboratory Section that not all can be carried in the limited pages of the American Journal of Public Health. At the request of the officers of the Laboratory Section, the Editorial Board has arranged for the annual publication of an abstract section to include those papers that appear to be chiefly of interest to laboratory workers. As many as possible of the papers that seem to be of interest to other disciplines as well as those of the laboratory are published in full in this Journal. Abstracted papers are released for publication in the special journals of the laboratory field.

The following are abstracts of papers presented at the Eighty-Sixth Annual Meeting in St. Louis, Mo.

THE PERSISTENCE AND RESISTANCE OF STAPHYLOCOCCUS

FRANK B. ENGLEY, JR., Ph.D., Department of Microbiology, University of Missouri School of Medicine, Columbia, Mo. This paper was presented on October 28, 1958.

The alarming increase in the number of primary and secondary infections caused by antibiotic-resistant staphylococci over the past few years has resulted in increased interest and awareness of the importance of this organism as a continuing and ever present causative agent of infections in man. This organism is ever with man as a common inhabitant of his nose and throat. It is also prevalent on the skin of many normal persons. It gets into the environment of man: the air, his clothes, the dust, the things he touches, the bed clothes, and the walls and floors of his rooms through air-borne organisms and by direct and indirect contact.

Data reveal that this organism is very resistant to its environment. It is in fact the most resistant of the nonspore-forming bacteria. It is easily seen why the pathogenic strains of this organism are able to cause the number of infections, since they persist for long periods in the environment and in carriers, awaiting an opportunity to infect the newborn, the postoperative cases, and the debilitated.

The air in man's environment may be sampled qualitatively and quantitatively for microorganisms. The staphylococcus and the closely associated micrococci make up 85 per cent of the air flora. The flora vary in quantity, depending upon a number of factors including the general sanitation and cleanliness of the room, the number of people, amount of traffic and the type of activity in the room. Examples of this and its importance are shown by air-sampling data.

Another major factor in the increasing importance of the staphylococci is demonstrated by the fact that the organisms associated with man and his hospital environment in particular have become increasingly resistant to antibiotics. This is easily shown by air-sampling technics.

The microbial population of the air in hospital and nonhospital areas has been sampled qualitatively and quantitatively. The organisms isolated from the air were tested for susceptibility or resistance to a battery of antibiotics using standardized technics. Homes, business establishments, classrooms, laboratories, hospital rooms, clinics, and surgical amphitheaters were included in this study. Samples of outside areas were taken for comparison. Wide variation in the susceptibility or resistance patterns of organisms was observed in the microbial populations from the air of different areas. The data indicate that not all bacterial populations are becoming highly resistant to antibiotics. Organ-

isms from outdoor areas, homes, and business establishments showed patterns of relatively low resistance to the antibiotics. Organisms from certain hospital and clinic areas revealed patterns of increased resistance, while those from other hospital areas did not. Higher resistance to certain antibiotics which were used extensively was demonstrated for some antibiotics but not others. Air samplings of a new hospital before and at periods after occupancy revealed increasing resistance in the population of organisms. The findings suggest that the microbial populations in some hospital areas not only reflect the antibiotics in use but may also represent a residual antibiotic-resistant flora remaining after the susceptible flora has been destroyed or eliminated. This flora has become a reservoir of potentially dangerous invaders for patients and hospital personnel.

A NEW SELECTIVE AND DIFFERENTIAL MEDIUM FOR STAPHYLOCOCCUS AUREUS

JAMES E. GREER, Ph.D., and RICHARD R. MENARD, M.S., Department of Dermatology, Henry Ford Hospital, Detroit, Mich. This paper was presented on October 28, 1958.

The use of neomycin susceptibility for differentiating coagulase-positive from coagulase-negative staphylococci by both broth dilution and disc technics has been previously reported from this laboratory (Antibiotics Annual, 1957-1958). This principle has been extended, by incorporating neomycin in an agar base, to develop a medium for the isolation and identification of Staph. aureus. The complete medium contains Trypticase Soy Agar, mannitol, neomycin, phenolsulphonphthalein, and defibrinated sheep blood. This medium, mannitol neomycin agar, inhibits coagulase-negative staphylococci and micrococci, but not coagulase-positive staphylococci, Streptococcus, Proteus, Pseudomonas, or Candida. Thus, the medium is both selective and differential. The characteristic hemolysis produced by streptococci and staphylococci is obtained on this medium. Pathogenic staphylococci may also be recognized by their pigmentation and mannitol reaction. The medium is made by adding 10 gm mannitol, 0.0025 gm phenolsulphonphthalein, 0.0005 gm neomycin sulfate, and 50 ml defibrinated sheep blood for each liter of Trypticase Soy Agar.

MEMBRANE FILTERS FOR COLIFORM AND TOTAL COUNTS OF MILK

ARCHIE H. ROBERTSON, Ph.D., F.A.P.H.A., State Food Laboratory, Department of Agriculture and Markets, Albany, N. Y. This paper was presented on October 29, 1958.

Following directions prepared by the Millipore Filter Corporation, Watertown, Mass., results by the membrane filter method have been compared with those by recognized APHA procedures in the 10th Edition of Standard Methods for the Examination of Dairy Products. Comparisons in 1958 in five different laboratories included tests on samples as follows:

1. Total count on 40 raw milk samples by Standard Plate Method.
2. Total count on 40 raw milk samples by Laboratory Pasteurization Method.
3. Total count on 30 pasteurized milk samples with Standard Plate Method.
4. Total count on 30 pasteurized-homogenized milk samples with Standard Plate Method.
5. Coliform determinations on 30 pasteurized milk samples.
6. Coliform determinations on 30 pasteurized-homogenized milk samples.

Variance among comparative tests was greater than expected. Among causes for variance may be lack of familiarity with the test procedure, failure to recognize and conform with essential directions in performing the test, and an inadequate pre-study of method by the manufacturer for its application to fluid milk. Both aging after milking and heating, as during pasteurization, tend to make filtration progressively

more difficult. Until better agreement between the conventional and the filter methods can be obtained, recommendations are not to recognize use of the latter method as an optional procedure. If use of the filter method is to be applied successfully to milk, much additional study is needed to refine it.

STATISTICAL COMPARISON OF LOGARITHMIC AVERAGE, 3-OUT-OF-4, AND 3-OUT-OF-5 METHODS FOR GRADING MILK BY PLATE COUNTS

EUGENE K. HARRIS, Ph.D.; LUTHER A. BLACK, Ph.D., F.A.P.H.A.; and C. E. ZIMMER, Robert A. Taft Sanitary Engineering Center, Cincinnati, Ohio. This paper was presented on October 29, 1958.

From time to time in the past the agreement of the 3-out-of-4 method and logarithmic average method for grading bacterial quality of milk by plate counts has been questioned on the grounds that the former is a more stringent rule, particularly with respect to milk fluctuating close to the standard. Theoretical comparisons indicate that this is probably true and that a less strict 3-out-of-5 rule would agree more closely with the log average method. Detailed analyses of 469 series of actual plate counts representing milksheds from almost every region of the country clearly confirm the theoretical comparison of the log average and 3-out-of-4 methods and showed that in practice the 3-out-of-5 rule yields about the same proportions of variations and degradings as the log average. These findings held for a grade limit of 100,000 as well as 200,000 colonies per ml.

QUANTITATION OF CHOLESTEROL IN THE PUBLIC HEALTH LABORATORY

NELL F. HOLLINGER, Ph.D., F.A.P.H.A., School of Public Health, University of California, Berkeley, Calif. (Supported in part by Faculty Research Grants, University of California.) This paper was presented on October 30, 1958.

Data are presented on the precision, accuracy, and adaptability of three methods for the quantitation of cholesterol, as well as findings on a representative sample of the population in a survey on 3,994 longshoremen. Results of studies on the purity of commercially available cholesterol for use as standards are noted.

The studies on commercial cholesterol show that repurification before use is desirable and that proper storage of the cholesterol is essential. Reproducibility of absorbance on cholesterol standards was estimated by the Carr-Drekter, Modified Carr-Drekter, and Forbes Irving methods. Differences in estimated OD on cholesterol standards are to be expected due to the inherent differences in wave length, concentration, and length of light path used in the various methods.

The Carr-Drekter and Modified Carr-Drekter methods are compared with the reference method of Schoenheimer Sperry by means of paired tests on the same sera. Correlation coefficients greater than 0.96 are obtained. Results average somewhat higher by the Carr-Drekter and Modified Carr-Drekter methods. The Carr-Drekter has a greater ease of performance than the SS and a reproducibility well within the values found for other methods. Adoption of this method by laboratories would eliminate many interlaboratory differences.

During a 1951 survey of longshoremen blood specimens were obtained on 193 men (a representative sample of the population). Cholesterol levels were obtained from paired values by the Forbes Irving method, and a mean cholesterol value of 210 mg/100 ml was found. Ten screening tests were used, including cholesterol level, blood pressure, and weight. About half (90 cases) were found to be negative by these three criteria. The mean cholesterol value for the longshoremen did not increase with age or by weight group. In a five-year follow-up period the negative group accounted for one-half the cases of ASHD. One-third of all ASHD (four cases) was

diagnosed in that portion of the population (23 per cent) in which total cholesterol was 230 mg/100 ml or more, a finding in conformity with evidence that in many clinically proven cases of ASHD the total cholesterol is high. The total number of cases of ASHD in this survey is low, and even for a much larger survey sample such an association of cholesterol level and ASHD would not be conclusive evidence of a cause and effect relationship.

THE MINOPRIO TEST AND ITS USE IN THE DETECTION OF BRUCELLA INFECTION

CHARLES M. CARPENTER, M.D., F.A.P.H.A.; DOROTHY HEILMAN, M.D.; and JANE WALKER, Department of Infectious Diseases, University of California at Los Angeles Medical Center, Los Angeles, Calif. This paper was presented on October 30, 1958.

The bactericidal activity of undiluted serum from patients with chronic brucellosis, as measured by the Minoprio test, was markedly decreased when compared to the sera from normal persons unsensitized to Brucella infection as determined by the agglutination and intradermal tests.

The decreased bactericidal activity of the serum for Brucella in vitro could be correlated with dermal sensitivity to Brucella but was unrelated to the agglutinin content of the patient's serum which ranged from no demonstrable agglutinins to a titer of 1-1,280.

The bactericidal activity for Brucella was restored by adding complement to sera exhibiting a positive Minoprio test. The effect was more striking in sera without Brucella agglutinins or with low titers of from 1-80 to 1-320. The addition of complement to sera with titers of from 1-640 to 1-1,280, enhanced the bactericidal activity but not sufficiently to yield a negative Minoprio test.

The results of Minoprio tests on serum from patients with chronic illnesses, i.e., tuberculosis, rheumatic heart disease, and bronchogenic carcinoma may be correlated with the absence or presence of dermal sensitivity to Brucella infection. Positive Minoprio tests were observed in two patients with Hodgkin's disease, two with tuberculosis, and in four with late syphilis even though no evidence of sensitization to Brucella was tested other than the positive Minoprio test. These data suggest that the serum from certain patients with a granulomatous infection other than brucellosis may have decreased bactericidal activity for several specific infectious agents.

The Minoprio test did not differentiate, with certainty, active brucellosis from immunity to the infection.

DETECTION IN HUMAN SERA OF CANCER ANTIGENS BY THE SCHULTZ-DALE METHOD AND OF CANCER ANTIBODIES AND AUTO-ANTIBODIES BY AN INTRADERMAL REACTION

JACK G. MAKARI, M.D., Muhlenberg Hospital, Plainfield, N. J. This paper was presented on October 30, 1958.

The first part of this study (Detection in Human Sera of Cancer Antigens by the Schultz-Dale Method) was to have been presented at the Laboratory Section meeting two years ago. However, since the results seemed too good to be true, the presentation was postponed. It was decided to wait until others could verify this work. It has been confirmed by Dr. Burrows of Queen's University, Belfast. In a study of 508 patients, he obtained 96.7 per cent positive reactions in carcinomas (compared to our 96.8 per cent) and 3.3 per cent in other diseases (to our 4.8 per cent). This establishes this procedure as a specific diagnostic test for carcinoma.

Further modifications of this test enables its use as a screening procedure for tumors and also as a screening procedure for methylcholanthrene-like substances in the sera of cancer patients and of apparently healthy individuals.

The second part of this paper is based on a study of 201 individuals using an

intradermal reaction with polysaccharide antigens from carcinomatous tissues and polysaccharide-antibody complexes. In this way antibodies and auto-antibodies are detected to a high degree and such information is of use in:

a. Early diagnosis of tumors, and the determination of recurrence after operation (by the findings of auto-antibodies).

b. Epidemiological studies of possible causative factors, environmental or hereditary (by the findings of antibodies).

The polysaccharide antigen seems to possess immunizing value as measured by the anamnestic reaction induced by a second injection in volunteers. The possible use of this induced immunity in the prevention of cancer is discussed.

PULMONARY LESIONS IN MICE FOLLOWING CONSECUTIVE MYXOVIRUS INFECTIONS

PATSY R. FOWLER, M.S., and C. J. MCCAMMON, M.D., School of Medicine, University of Southern California, Los Angeles, Calif. (This investigation was supported by Grant LC-24 from the American Cancer Society, Inc.) This paper was presented on October 30, 1958.

The pathogenesis of repeated or prolonged experimental virus infections of the lung has been studied less extensively than that of single acute bouts of virus pneumonitis. This study was undertaken to determine the pathology of consecutive attacks of virus pneumonitis. We were able repeatedly to insult identical areas of a single lung so that a cumulative effect was produced. Our findings support widely held clinical concepts based on observation of subacute or chronic lung infections in man which are so often punctuated by a series of acute exacerbations.

The influenza virus group (the myxoviruses) was selected for experiment for three reasons. First, influenza viruses Types A and B, respectively, evoke in mice not only acute pneumonitis, but also subacute and chronic lesions of a type that we desired to investigate. Second, the pathogenetic sequence of the pneumonitis caused by the two types of virus is virtually identical; the same tissues are involved in the same order by the same pathologic processes. Third, heterotypic influenza virus strains induce no reciprocal cross-immunity, so that recovery of mice from pneumonitis induced by one does not preclude superinfection with the other.

The PR8 strain of influenza virus A and the Lee strain of influenza virus B, both well adapted to the mouse lung, were chosen for study in C57 black mice. Sendai virus,[1] for which the term influenza virus D has been proposed,[2] was also adapted to mice. Following intranasal inoculation with the three agents in various combination, standard lung sections were examined histologically after several time intervals. We found that for a few days after the beginning of the infection Sendai pneumonitis resembles that produced by influenza viruses A or B. There is partial or complete destruction of bronchiolar epithelium with accompanying infiltration of inflammatory cells, mostly polymorphonuclear leucocytes. Unlike lesions of influenza A or B pneumonitis, however, in which regeneration and marked proliferation of bronchiolar epithelium is followed by development of chronic atrophic cystic lesions, the lesions of Sendai pneumonitis do not proceed beyond epithelial hyperplasia and inflammation; but the inflammation is more intense in Sendai pneumonitis than in influenza A or B pneumonitis. Microabscesses form, and marked peribronchiolar and perivascular cuffing with round cells, lasts for as long as six weeks after inoculation.

The intensity of the early inflammatory changes in Sendai pneumonitis in the mouse lung was not reflected in the dose of virus needed to cause death. It required 100 to 1,000 times as much Sendai virus as either influenza virus A or influenza virus B to kill the mice.

Similar findings have been reported by others.[2] Perhaps these differences can be explained by incomplete adaptation of Sendai virus to mouse lung, or by postulating a fundamentally different type of adaptation and with a different pathogenesis of the Sendai lesion than those seen in influenza A or B pneumonitis.

The fact that Sendai pneumonitis could be distinguished from influenza A or B pneumonitis as late as six weeks after inoculation was most helpful in studying consecutive infections, since after the relatively nonspecific changes of early acute influenza A or influenza B pneumonitis the two latter diseases cannot be told apart by anatomic criteria alone as they progress toward subacute or chronic stages. It is thus difficult if not impossible to determine whether reactivation of a subacute or chronic lesion of influenza A in a given mouse lung might be caused by subsequent superinfection with influenza B or vice versa.

The three viruses were inoculated consecutively into groups of mice in various sequences. Corresponding pneumonitides developed consecutively in different lobes of a single lung, in different areas of the same lobes of the lung and in some cases were recognizably superimposed in a single lobe. In several instances acute Sendai pneumonitis appeared to reactivate subacute or chronic epithelial hyperplasia in lungs of mice having antecedent PR8 or Lee pneumonitis.

Further studies are under way in which repeated attacks of virus pneumonitis are utilized in investigating the additional effect of weakly carcinogenic inhalants.

Summary

Consecutive infections of the same portion of a mouse lung can be induced when influenza viruses A or B, or Sendai virus, are serially inoculated. Early lesions can be distinguished when superimposed on late lesions. Sendai lesions can be differentiated from influenza A or B lesions for as long as the former persist, since the Sendai lesion caused by the strain of virus employed was more intense but not as progressive as the influenza virus A or B lesion.

Healing subacute or atrophic chronic lesions due to influenza viruses A or B were sometimes involved during later Sendai pneumonitis. In some cases hyperplastic epithelial changes due to influenza viruses A or B appeared to be reactivated by subsequent acute Sendai pneumonitis. Under these experimental conditions, therefore, it was possible repeatedly to insult the lung of the mouse by means of serial bouts of induced virus pneumonitis. Long-term effects, including the possible cocarcinogenic effects of inhalants, are under study.

REFERENCES

1. Kuroya, M.; Nakao, I.; and Shiratori, T. Newborn Virus Pneumonitis (Type Sendai). II. The Isolation of a New Virus. Tohoku J. Exper. Med. 58:62, 1953.
2. Jensen, K. E.; Minuse, E.; and Ackermann, W. W. Serologic Evidence of American Experience with Newborn Pneumonitis Virus (Type Sendai). J. Immunol. 75:71-77, 1955.

SEROLOGICAL AND IMMUNOLOGICAL ANTIGENICITY OF HIGH TEMPERATURE SHORT-TIME THERMAL INACTIVATED VIRUSES. I. NEWCASTLE'S DISEASE VIRUS

RAY M. DUTCHER, M.S.; RALSTON B. READ, JR., Ph.D.; and WARREN LITSKY, Ph.D., F.A.P.H.A., Department of Bacteriology and Public Health, University of Massachusetts, Amherst, Mass.

This paper was presented on October 30, 1958.

This is a report of a new method for inactivating the virus of Newcastle's disease while retaining strong antigenicity, through the use of the principle of relatively high temperatures for times as short as 0.033 second.

The virus of Newcastle's disease, when inactivated by this method, retained the ability to fix complement with known

immune sera, and to produce a strong immune response in vaccinated NDV susceptible four-week-old chicks.

The use of this heat inactivation technic is concurrently being studied for its use and application in preparing a number of other virus vaccines.

The results of this investigation apparently validate the concept that by raising the temperature of inactivation, and shortening the exposure time, there is a minimum of destructive denaturation of vital proteins comprising the antigenic material of the particular agent.

AHA Returns to NHC

The Board of Trustees of the American Hospital Association recently voted reaffiliation with the National Health Council. The relationship was then reestablished by unanimous vote of the Executive Committee of the council. Thus the hospital group joins the American Medical Association in reestablishing its membership in this national agency which serves as a conference ground and a mechanism for cooperative activity. With recent election to membership also of the American College of Preventive Medicine the 38-year-old council now numbers 65 national organizations concerned with health improvement.

ASSOCIATION NEWS

EIGHTY-SEVENTH ANNUAL MEETING
AMERICAN PUBLIC HEALTH ASSOCIATION
ATLANTIC CITY, N. J.—OCTOBER 19–23, 1959

1959 GOVERNING COUNCIL NOMINATIONS

The Nominating Committee for Elective Councilors has completed its assignment for this year by submitting the following names as its selections of Governing Council nominees for 1959.

Section 1 of Article IX of the Association By-Laws provides that the Nominating Committee, composed of one representative elected by each section and a chairman appointed by the Executive Board, shall "present to the Executive Director not less than six months before the Annual Meeting the names of the Fellows selected as nominees for the Governing Council. The number of nominees shall be not less than two nor more than three times the number of vacancies which will exist at the adjournment sine die of the Governing Council at the next Annual Meeting." Section 2 calls for publication of the nominees to be not less than five months before the Annual Meeting.

Wendell R. Ames, M.D., M.P.H.
Department of Health
Rochester, N. Y.

Polly Ayers, D.D.S., M.P.H.
Jefferson County Board of Health
Birmingham, Ala.

Joseph A. Bell, M.D., Dr.P.H.
National Institutes of Health
Bethesda, Md.

Philip E. Blackerby, Jr., D.D.S., M.S.P.H.
W. K. Kellogg Foundation
Battle Creek, Mich.

Howard L. Bodily, Ph.D.
State Department of Public Health
Berkeley, Calif.

Lester Breslow, M.D., M.P.H.
State Department of Public Health
Berkeley, Calif.

I. Jay Brightman, M.D., M.S.P.H.
State Interdepartmental Health Resources Board
Albany, N. Y.

Josef Brozek, Ph.D.
Lehigh University
Bethlehem, Pa.

William A. Brumfield, Jr., M.D.
Westchester County Department of Health
White Plains, N. Y.

Theron H. Butterworth, Ph.D.
National Society for Crippled Children
New York, N. Y.

George M. Cameron, Ph.D.
State Department of Public Health
Nashville, Tenn.

Loren E. Chancellor
State Department of Health
Des Moines, Iowa

Martha L. Clifford, M.D., M.P.H.
State Department of Health
Hartford, Conn.

Edward Davens, M.D.
State Department of Health
Baltimore, Md.

Mayhew Derryberry, Ph.D.
Bureau of State Services, Public Health Service
Washington, D. C.

Ann Dillon, M.S.P.H.
State Department of Public Health
Nashville, Tenn.

Bernice di Sessa, R.N., M.A.
State Department of Health
Denver, Colo.

Warren F. Draper, M.D.
UMWA Welfare and Retirement Fund
Washington, D. C.

Harold M. Erickson, M.D., M.P.H.
State Board of Health
Portland, Ore.

Stanford F. Farnsworth, M.D.
Maricopa County Health Department
Phoenix, Ariz.

Thomas Francis, Jr., M.D.
University of Michigan
Ann Arbor, Mich.

F. Wellington Gilcreas
University of Florida
Gainesville, Fla.

John B. Grant, M.D.
University of Puerto Rico
San Juan, P. R.

Ruth E. Grout, Ph.D., M.P.H.
University of Minnesota
Minneapolis, Minn.

Alice Hagelshaw, R.N., M.P.H.
Simmons College
Boston, Mass.

Morton S. Hilbert, M.P.H., C.E.
Wayne County Health Department
Dearborn, Mich.

Vane M. Hoge, M.D.
Hospital Planning Council for Metropolitan Chicago
Chicago, Ill.

Louise L. Holmes, M.A.
State Board of Health
Jackson, Miss.

Ramona B. Hopkins, R.N., M.P.H.
Alameda County Health Department
Hayward, Calif.

Ruth L. Huenemann, D.Sc.
University of California
Berkeley, Calif.

Morton Kramer, D.Sc.
National Institute of Mental Health
Washington, D. C.

James Lieberman, D.V.M., M.P.H.
Health Services Training Section, Communicable Disease Center
Atlanta, Ga.

Dwight F. Metzler, C.E.
State Board of Health
Topeka, Kans.

Alan D. Miller, M.D., M.P.H.
Public Health Service
Denver, Colo.

Lucy S. Morgan, Ph.D.
University of North Carolina
Chapel Hill, N. C.

Ralph S. Muckenfuss, M.D.
Naval Medical Research Institute
Bethesda, Md.

Carl A. Nau, M.D.
University of Texas
Galveston, Texas

Margaret E. Rice
Board of Health
Jackson, Miss.

Mabel Ross, M.D., M.P.H.
Public Health Service
New York, N. Y.

Philip E. Sartwell, M.D., M.P.H.
Johns Hopkins University
Baltimore, Md.

Charles L. Senn
City Health Department
Los Angeles, Calif.

John W. Shackelford, M.D., M.P.H.
State Department of Health
Oklahoma City, Okla.

James A. Shannon, M.D., Ph.D.
National Institutes of Health
Bethesda, Md.

Jane B. Taylor, R.N., M.P.H.
City Health Department
Minneapolis, Minn.

Charles C. Wilson, M.D.
Yale University
New Haven, Conn.

Wesley O. Young, D.M.D., M.P.H.
State Board of Health
Boise, Idaho

Fellows and Members of the Association are reminded that Section 3 of By-Law Article IX states that "upon the petition of twenty-five Fellows or Members, the Nominating Committee shall add the name of any Fellow to the nominees selected by it, provided such petition is received not less than three months before the annual meeting." The closing date for the receipt of such petitions by the Executive Director will be July 19, 1959.

The list of Governing Council nominees shown above, plus any that may be

added by petition, will be carried on the official ballot which will be mailed on August 19 to all Fellows and Members in good standing. There will be 16 vacancies on the Governing Council to be filled.

The Members and the sections represented of the 1959 Nominating Committee for Elective Councilors are:

Roy L. Cleere, M.D., M.P.H.—Chairman and representing the Unaffiliated group
Herman J. Bennett, M.D.—Occupational Health
Francis V. Corrigan, M.D.—Maternal and Child Health
Paul M. Densen, D.Sc.—Statistics
Lois B. Earl, M.Sc.—Food and Nutrition
Alexander G. Gilliam, M.D.—Epidemiology
Ann W. Haynes, M.P.H.—Public Health Education
Mark D. Hollis, C.E.—Engineering and Sanitation
Sol S. Lifson, M.P.H.—School Health
Josephine K. Omura—Mental Health
Eleanor E. Palmquist, M.A., R.N.—Public Health Nursing
Walter J. Pelton, D.D.S.—Dental Health
Dean W. Roberts, M.D.—Medical Care
Elizabeth D. Robinton, Ph.D.—Laboratory
Ellis D. Sox, M.D.—Health Officers

TDB's Six Work Parties

The Technical Development Board has created six work parties to explore the Association's responsibility and role in a number of problems. The working party on Alcoholism was created to explore the problem of alcoholism and to recommend what activities in this field should be undertaken by the Association. The chairman is John R. Philp, M.D., chief of the Division of Alcoholic Rehabilitation, California State Department of Health.

A work party on Health Services in Disaster, chaired by Ira V. Hiscock, Sc.D., chairman of Yale University's Department of Public Health, reported at the March meeting of TDB. The report recommended the creation of an association unit to carry on activities with respect to natural or unintentional man-made disaster. This unit, staffed on a full-time basis, should "assume an active, imaginative and bold role in . . . the improvement of health and medical services in disaster," and explore, plan, and execute services as need and opportunity arises. Funds for this purpose should be sought from government agencies, private foundations, and other sources.

As to thermonuclear war disasters the work party indicated insufficient evidence currently of "any reasonable probability of substantial protection of the people against the effects of thermonuclear warfare." Hence, it recommended that the natural disaster unit continuously examine the available knowledge and recommend to the APHA any actions believed to contribute effectively to the improvement of planning for public health protection in the event of thermonuclear war. With this report the work party was discharged and its recommendations transmitted to the Executive Board.

Robert F. Korns, M.D., chief of the Office of Program Development and Evaluation, New York State Health Department, is chairman of a work party on Staphylococcal Infections to assay its importance to public health, APHA's role, to develop recommended practices for state, local, and national health agencies, and to make recommendations for revision of the chapter on these infections in the ninth edition of "Control of Communicable Diseases in Man," scheduled for 1960 publication.

The work party on Chemical Additives in Foods is chaired by Jerome Trichter, assistant commissioner in charge of environmental health, New York City Department of Health. This committee is asked to determine whether the Association should set up standards in this field or whether there are activities it should carry on because no other groups are meeting the need or because it is peculiarly fitted to exercise special leadership.

A work party on a Broadened Spectrum of Health and Morbidity is chaired by Samuel M. Wishik, M.D., professor of maternal and child health, Pittsburgh Graduate School of Public Health. The terms of reference given to this work party by TDB are "to formulate in detail policies and proposals for developing sensitive recognition of morbidity, particularly as to how public health authorities and organizations should deal with a broadened spectrum of morbidity and the conditions of life that affect it."

The newest work party, established at the March meeting of TDB, is on Public Health Nursing Research. Its chairman is Anna Fillmore, M.P.H., newly appointed director of the New York City Henry Street Nursing Service, who suggested the need. This group is asked to prepare for TDB a report on research needs in public health nursing not now being met, ways in which such research might be carried on, and resources in personnel, facilities, and finances.

Dr. Press to Evanston, Ill.

Edward Press, M.D., director of field services of the Association, is resigning as of August 1 to accept the position of director of public health, Evanston, Ill. Dr. Press will succeed the late Winston Tucker, M.D., long-time health officer of Evanston. A residential suburb of Chicago, Evanston is a city of 80,000 under a city management form of government. Dr. Press is looking forward to its development as a model unit for the provision of community health services.

Dr. Press came to the Association in January, 1955, as director of field services. In addition to the two major health surveys of St. Louis and of Bridgeport, Conn., he has been involved in numerous briefer surveys. He has developed APHA activities in poisoning control and is, indeed, the father of the poison control center movement through his committee activities with both the American Academy of Pediatrics and the American Medical Association.

Dr. Press staffed the Committee on Administrative Practice and later the Technical Development Board. He saw the Board through its pioneering days and guided the development of its eight Program Area Committees.

Another CPE Educational Report

"Educational Qualifications of Executives of Voluntary Health Organizations and Health Councils" will be found on page 679 of this Journal. This is the second educational qualifications report to be completed for publication in 1959 by the Committee on Professional Education. The first was on Public Health Veterinarians published in the January, 1959, Journal (p. 113) after its approval by the Governing Council on October 30, 1958.

By a mail vote two-thirds of the Governing Council approved the Executives Report. Of those voting, 93 per cent approved. In the final report some changes were made on the basis of comments by Governing Council members. Previous to acceptance by the Committee on Professional Education the report as prepared by a subcommittee was submitted to about 70 persons with special competence in this field. Their comments were considered in the final preparation.

Forty Years with the APHA

In 1949 members or Fellows receiving 40-year Membership Certificates numbered 17. A current look at this list indicates nine of these are still on the membership rolls. Six are Fellows, three are members. Three are engineers, five are physicians, and one a nonmedical health officer. Three are in the Engineering and Sanitation Section, one each in the Laboratory, Medical Care, Health Officers, and Public Health Education Sections, and two are unaffiliated.

NEWS OF AFFILIATED SOCIETIES AND BRANCHES

APHA Affiliated Societies and Branches

SOCIETY AND SECRETARY

ALABAMA PUBLIC HEALTH ASSOCIATION, Norma L. Chandler, State Health Dept., Montgomery
ARIZONA PUBLIC HEALTH ASSOCIATION, Mrs. Verona Massey, State Dept. of Health, Phoenix
ARKANSAS PUBLIC HEALTH ASSOCIATION, Mrs. Vada Russell, State Health Dept. Bldg., Little Rock
CALIFORNIA, NORTHERN, PUBLIC HEALTH ASSOCIATION, Ruth Bishop, 225-37th Ave., San Mateo
CALIFORNIA, SOUTHERN, PUBLIC HEALTH ASSOCIATION, Dorothea Hansen, City Health Dept., Los Angeles 12, Calif.
COLORADO PUBLIC HEALTH ASSOCIATION, Alice de Bruyn Kops, 4660 S. Delaware, Englewood
CONNECTICUT PUBLIC HEALTH ASSOCIATION, Shirley Thayer, R.N., 61 Arnold Way, West Hartford 7
CUBAN PUBLIC HEALTH SOCIETY, Dr. Raphael Calvo Fonseca, Calle 19 No. 511 Altos Vedado, Havana
FLORIDA PUBLIC HEALTH ASSOCIATION, Nathan J. Schneider, Ph.D., P. O. Box 210, Jacksonville
GEORGIA PUBLIC HEALTH ASSOCIATION, Carl Fox, 33 Pryor St., N.E., Atlanta
HAWAII PUBLIC HEALTH ASSOCIATION, Alison MacBride, R.N., 510 S. Beretania St., Honolulu 13
IDAHO PUBLIC HEALTH ASSOCIATION, Wesley O. Young, D.M.D., P. O. Box 640, Boise
ILLINOIS PUBLIC HEALTH ASSOCIATION, William J. Hixon, Evanston Health Dept., Evanston
INDIANA PUBLIC HEALTH ASSOCIATION, Cale E. Coons, State Board of Health, Indianapolis
IOWA PUBLIC HEALTH ASSOCIATION, Lloyd Coe, Iowa Hospital Association, 1012 Liberty Bldg., Des Moines
KANSAS PUBLIC HEALTH ASSOCIATION, Evelyn Ford, State Board of Health, State Office Bldg., Topeka
KENTUCKY PUBLIC HEALTH ASSOCIATION, Mrs. Mary Ann Rhodes, 620 S. Third St., Louisville 2
LOUISIANA PUBLIC HEALTH ASSOCIATION, Andrew Hedmeg, M.D., State Dept. of Health, New Orleans 7
MARYLAND PUBLIC HEALTH ASSOCIATION, Lillian B. Davis, Sc.D., Department of Education, Baltimore
MASSACHUSETTS PUBLIC HEALTH ASSOCIATION, Mrs. Elizabeth K. Caso, Dept. of Health, Cambridge.
MICHIGAN PUBLIC HEALTH ASSOCIATION, Maurice J. Mayer, 405 Hollister Bldg., Lansing
MINNESOTA PUBLIC HEALTH CONFERENCE, D. S. Fleming, M.D., State Dept. of Health, University Campus, Minneapolis
MISSISSIPPI PUBLIC HEALTH ASSOCIATION, H. E. Boone, P. O. Box 1700, Jackson
MISSOURI PUBLIC HEALTH ASSOCIATION, Mrs. Nadia Craver, 5th Fl., State Office Bldg., Jefferson City
MONTANA PUBLIC HEALTH ASSOCIATION, Thomas S. Willett, Montana Public Health District 1, Hardin
NEBRASKA PUBLIC HEALTH ASSOCIATION, Emily Brickley, 1004 Capitol Bldg., Lincoln
NEW MEXICO PUBLIC HEALTH ASSOCIATION, Daniel T. Marley, P. O. Box 8066, Albuquerque
NEW YORK CITY, PUBLIC HEALTH ASSOCIATION OF, Allan Marlowe, 295 Flatbush Ave., Brooklyn 1
NEW YORK STATE PUBLIC HEALTH ASSOCIATION, Mrs. Kathleen Boland, Rensselaer County Health Dept., Troy
NORTH CAROLINA PUBLIC HEALTH ASSOCIATION, R. W. Brown, Bucombe County Health Dept., Asheville
NORTH DAKOTA PUBLIC HEALTH ASSOCIATION, Jean E. Norton, R.N., Box 133, Bismarck
OHIO PUBLIC HEALTH ASSOCIATION, Virginia Jones, Ohio Dept. of Health, Dayton
OKLAHOMA PUBLIC HEALTH ASSOCIATION, Marjorie Butler, 3400 North Eastern, Oklahoma City
OREGON PUBLIC HEALTH ASSOCIATION, Russell E. Lee, P. O. Box 231, Portland 7
PENNSYLVANIA PUBLIC HEALTH ASSOCIATION, Emma J. Petach, R.N., 324 N. Second St., Harrisburg
PUERTO RICO PUBLIC HEALTH ASSOCIATION, Mrs. Lusia L. Trinidad, Santurce
SOUTH CAROLINA PUBLIC HEALTH ASSOCIATION, Mrs. Laura M. DeMarse, State Health Dept., Columbia
SOUTH DAKOTA PUBLIC HEALTH ASSOCIATION, Alice Brady, R.N., State Dept. of Health, Pierre
TENNESSEE PUBLIC HEALTH ASSOCIATION, C. B. Tucker, M.D., State Dept. of Health, 420 Sixth Ave., N., Nashville
TEXAS PUBLIC HEALTH ASSOCIATION, Joseph N. Murphy, Jr., State Dept. of Health, Austin
UTAH PUBLIC HEALTH ASSOCIATION, Mrs. Virginia Cole, City Health Dept., 115 S. State St., Salt Lake City
VIRGINIA PUBLIC HEALTH ASSOCIATION, William A. Dorsey, P. O. Box 2088, Richmond
WASHINGTON STATE PUBLIC HEALTH ASSOCIATION, Tom Drummey, State Dept. of Health, Smith Tower, Seattle
WEST VIRGINIA PUBLIC HEALTH ASSOCIATION, Paul B. Shanks, State Health Dept., Charleston
WISCONSIN ASSOCIATION FOR PUBLIC HEALTH, Paul Weis, 1 W. Wilson St., Madison
MIDDLE STATES BRANCH, APHA, Thelma Luther, Dept. of Health, Des Moines, Iowa
SOUTHERN BRANCH, APHA, Betty Ficquett, State Board of Health, Columbia, S. C.
WESTERN BRANCH, APHA, Mrs. L. Amy Darter, c/o Executive Office, 760 Market St., San Francisco 2, Calif.

Middle States Meets with Iowa

The Iowa Public Health Association joined with Des Moines from April 1-3 in a spring welcome to the 385 delegates to the tenth annual meeting of the Middle States Public Health Association. This occasion jointly commemorated the first meeting of the MSPHA as the newest branch of the APHA.

The theme for the joint meeting was "Let's Get Together." This provided the central thread for two general sessions, three meetings of each of six sections, the Governing Council luncheon session, and a social hour and banquet. Fred C. Long, M.D., health officer of Peoria, Ill., opened the first general session with his presidential address on the need to remain alert to our foundations as we look forward and make progress. Said Dr. Long, "public health departments are a part of the state and local governments." Our activities are closely integrated and dependent upon powers granted us by the state government. It

is important that the public health administrator be alert to the laws and powers he has in order to utilize them properly. It is equally important that the public be acquainted with these rules and regulations so that they will recognize reasonable results for the money expended.

Berwyn F. Mattison, M.D., executive director, brought greetings from the American Public Health Association. In "Contributions of a Professional Society to Public Practice," Dr. Mattison elaborated on the four principal values accruing to each member from joining the national professional organization: professional and intellectual stimulation; formulation of standards for public health practice and personnel; increasing the stature of public health workers; and influencing the legislation with which public health programs are implemented. Carrying out these roles results in a more effective working relationship. The more State and Branch Affiliates strengthen the national organization, the more APHA can help to improve the whole field of public health.

A sampling of the program points out the extent to which the theme of "Let's Get Together" was utilized: the Nursing Section exchanged ideas for nursing services; the School and Community Health Education Section took the wider view in health education of the public; animal diseases affecting man were explored by the Environmental Health, Laboratory, Epidemiology, and Preventable Diseases Sections; the Nutrition, Dental Health, and Maternal and Child Care Sections tackled the subject of misinformation; and the Vital Statistics and Records Section studied medicolegal cases and death certification.

Another expression of the theme was the all-day meeting on April 3 of the APHA Standing Committee on Affiliated Societies and Regional Branches to plan for the third annual "get-together" of affiliated representatives at the APHA Annual Meeting in Atlantic City, October 17, 1959. The two major topics to be discussed at that time by the representatives will be membership and public policy and legislation. Affiliated Societies and Branches will in addition be requested to submit one topic each to be discussed by the working groups.

The Middle States and Iowa Associations each presented one honorary life membership. Middle States honored Past-President Leonard C. Murray, who also chaired the committee planning this year's meeting. Milford E. Barnes, M.D., professor emeritus, State University of Iowa, was honored by the Iowa association for his long years of service to public health.

S. P. Leinbach, M.D., Memorial Clinic, Belmond, succeeded Robert McAllister, public health engineer, State Health Department, as president of the Iowa Association. The other officers are:

President-Elect—Thelma Luther, R.N., educational director, Nursing Division, State Department of Health

Vice-President—James F. Speers, M.D., director, Des Moines-Polk County Health Department

Secretary-Treasurer—Lloyd Coe, executive secretary, Iowa Hospital Association

The new officers of the Middle States Branch, APHA, for 1959-1960 are:

President—A. C. Offutt, M.D., Indiana state health commissioner

President-Elect—Ralph Kuhli, staff executive for programs, National Safety Council

Vice-President—Henry H. Bauer, Ph.D., Division of Medical Laboratories, Minnesota Department of Health

Secretary-Treasurer—Thelma Luther, R.N.

Representative to the APHA Governing Council—A. C. Offutt, M.D.

Oklahoma Meets in Stillwater

The Oklahoma Public Health Association held its 18th annual meeting in Stillwater, March 4-6, 1959. The meeting was built around the theme of public health education. This theme was carried

out in various ways through three general sessions and one half-day meeting of each six sections. The first general session was opened with a paper by Jack C. Haldeman, M.D., chief of the Division of Hospital and Medical Facilities of the Public Health Service, on "Progressive Patient Care from the Viewpoint of the Public Health Worker," read for him by Richard C. Boyd, M.D., medical director, Dallas Regional Office, PHS.

"Public Relations in Legislation" was discussed by Noble Swearingen, director of the APHA's Washington office, who also led a panel on the improvement of health services by legislative action at the joint meeting of the Health Education and Clerical and Statistical Sections. Mr. Swearingen represented the APHA and brought the greetings of its president and executive director. Jean South, R.N., director, Tuberculosis Nursing Advisory Service, National League of Nursing, spoke on interpretation of nursing service in the community.

At another general session, "Health and Fitness" was explored by W. W. Bauer, M.D., director, Bureau of Health Education, American Medical Association; "Dental Disease a Public Health Problem" by Perry Sandell, D.D.S., director, Bureau of Dental Health Education of the American Dental Association; and "Public Health Nursing and the Mentally Retarded Child" by Jo Barnard, R.N., public health nurse, Oklahoma Mental Retardation Training Center.

Among the problems discussed in some of the section meetings were: "Nurses, Teenagers, and Nutrition," "Personnel Training to Meet the Needs in a Changing Environment," "The Effect of Cultural Patterns on the Community." At the final general session the dental director of the State Health Department, H. Roy Gravelle, D.D.S., outlined the present status of fluoridation in the state. Omer C. Hopkins, assistant chief, Division of Sanitary Engineering Service, PHS, in "Self, Sense, and Sanitation" indicated that there was increasing need for individual responsibility in environmental sanitation, as in other aspects of modern public health.

A proposed amendment to the constitution was approved by a majority of the members present. This would create a continuing Board of Councilors to serve on the Executive Committee. It provides for six councilors to be elected for a term of three years each, with two terms expiring each year.

Mozelle Ewing, R.N., public health nurse, Muskogee County Health Department, succeeded Wilson D. Steen, extension specialist, University of Oklahoma, as president. Other newly elected officers are:

President-Elect—Berl Poe, R.P.S., district sanitarian, State Department of Health

Vice-President—Richard W. Hume, accident prevention supervisor, State Department of Health

Secretary-Treasurer—Marjorie Butler, records consultant, local health service, State Department of Health

APHA membership application blank on page XXXI

EMPLOYMENT SERVICE

The following pages present information for those seeking public health personnel and for those seeking positions in public health. Other information concerning vacancies and personnel available is on file in the Association office. Anyone wishing to have the benefit of this additional information can obtain it by writing to the Vocational Counseling and Placement Service of the Association.

Advertising space in these pages is available at special rates for the use of employers or individuals. The charges are $5 for the first 50 words or fraction thereof and $1 for each additional 10 words or fraction thereof. There is no charge to members or Fellows of the Association who desire to utilize the **Positions Wanted** portion of these pages. **Closing date** for receipt of advertisements is the first of the month preceding the desired month of publication. **All correspondence should be sent to the American Public Health Association, 1790 Broadway, New York 19, N. Y.**

POSITIONS AVAILABLE

Public Health Officer—Wanted for well established local county health department. M.P.H. required. Salary $12,000, plus travel, retirement, vacation, and sick leave. Lee County Health Department, Dixon, Ill.

Medical Health Officer—for Springfield, Mass. (population 170,000). Modern public health program, including school health services. Staff: 56 full-time and 34 part-time employees. Excellent personnel policies. Qualifications: M.D. and experience in public health required; M.P.H. desirable. Salary open. Apply to John C. Ayres, M.D., 1414 State St., Springfield, Mass.

Public Health Physician for Director, State Disease Control or Child Health Division—Appointment made on basis of public health training, experience, and applicant's interest. Starting salary for qualified person $12,120 or better, with possible periodic increases to $14,040, and by promotion to $14,880. Social Security, excellent state retirement, under merit system appointment. Write Executive Officer, State Board of Health, Helena, Mont.

Medical Health Officer (Grade I)—for Cortland County Health Department (population 40,000); offices in city of Cortland, county seat. Salary starts at $14,000 per year; car furnished. Established in 1928, the health unit has a well trained staff of nurses and sanitarians, and a part-time sanitary engineer. Address inquiries to Dr. S. A. VerNooy, President, Board of Health, 84½ Main St., Cortland, N. Y.

School Physician—Full time; New York State medical license or eligibility required. Pediatric background and M.P.H. degree desired. Responsible, in conjunction with another full-time physician, for school health services to 8,000-9,000 children. Staff of eight nurses, five dental hygienists. Salary $10,000-$12,000, depending on experience; retirement plan, Social Security, vacation, sick leave. Write Elwin S. Shoemaker, Executive Officer, Board of Cooperative Education Services, Box 43, Yorkville, N. Y.

Health Officer—for Douglas County, with headquarters at Roseburg, Ore. $12,960 to start. M.D., plus M.P.H. and some experience. Must be eligible for licensure in Oregon. Social Security and state retirement coverage. Write to Mr. A. T. Johnson, Personnel Director, Oregon State Board of Health, P. O. Box 231, Portland 7, Ore.

Director, Local Health Services—Wisconsin. Work with the state health officer and professional staff in improvement of local health services. M.P.H. degree and eligibility for license to practice medicine in Wisconsin required. Salary $10,464-$14,484, commensurate with experience. Write E. H. Jorris, M. D., Assistant State Health Officer, 400 State Office Bldg., Madison 2, Wis.

Public Health Director—Full time, for a staff of 14. City of 45,000. Must be eligible for Wisconsin physician license. Salary range $10,327.20-$12,240.80 yearly. Car allowance, paid vacation, sick leave, and retirement benefits. Write Civil Service Commission, Sheboygan, Wis.

Veterinary Supervisor (Chief Meat Inspector)—Salary range is $6,447-$7,836 per year. Supervise modern municipal meat control program. Doctor of veterinary medicine degree required. Prefer man with supervisory experience in meat inspection work. Excellent working conditions and personnel benefits. Civil service status. Apply to Department of Personnel, City of St. Louis, 235 Municipal Courts Bldg., St. Louis 3, Mo.

Public Health Nurse—Immediate opening in eastern Idaho near Yellowstone Park, Teton mountains, and Jackson Hole, Wyo. Large recreational area nearby with boating, waterskiing, etc. Opportunity for program development in an urban-rural area. Close to a college. Beginning salary is $340 a month for a public health nurse with a college degree or one academic year of public health nursing background. Address inquiries to Dr. Terrell O. Carver, Administrator of Health, State House, Boise, Idaho.

Public Health Nursing Positions—Available in combination health department and visiting nurse service. Public health nursing preparation required. Generalized service. Agency in a university community. Beginning salary $4,326-$4,771, depending on education and experience. Social Security. Please write Miss Patricia Walsh, Nursing Director, Washtenaw County Health Department, County Bldg., Ann Arbor, Mich.

Director of Public Health Nursing—City of Pasadena. Requires B.S. in nursing and valid California certificates as an R.N. and as a public health nurse and three years' experience. Salary $503-$612. Pasadena residence not required. Apply to Personnel Department, City Hall, Pasadena, Calif., by June 30, 1959.

Public Health Nurses—with beginning salaries of $4,160, $4,550, $4,888, depending on qualifications, with merit increases, longevity rates, liberal sick and retirement benefits. New air-conditioned building. Contact Flint Civil Service Commission, Municipal Center, Flint 2, Mich.

PHYSICIAN
(OCCUPATIONAL HEALTH)

For company operated medical facilities in Saudia Arabia.

Preferably Board-certified or Board-eligible in preventive medicine (occupational medicine). To develop industrial medical service as part of company's general medical program. Liberal benefit program; modern family housing; plus educational and recreational facilities available. Write outlining personal and professional history.

Recruiting Supervisor, Box 402

ARABIAN AMERICAN OIL COMPANY

505 Park Ave., New York 22, N. Y.

Executive Director—Visiting Nurse Association, generalized program, including diagnostic chest clinics, nine-nurse staff. Supervisory experience in a VNA and degree required. Salary open, depending on qualifications. Write Mrs. William J. Wilson, President, Visiting Nurse Association, 2332 Pacific Ave., Atlantic City, N. J.

Public Health Nurse—for immediate appointment in urban and rural areas of Dutchess County, located about 75 miles north of New York City. Annual salary $3,960-$5,020; maximum reached in five years. Cars provided. Excellent personnel policies. Apply Director of Nurses, Margaret Wells, 236 Main St., Poughkeepsie, N. Y.

Public Health Engineer—for county health department, population approximately 100,000. Salary range $7,500-$9,000 per annum. Write to Dr. Neil Gordon, Commissioner, Chemung County Health Department, Elmira, N. Y.

Senior Public Health Engineer—to assume full charge of environmental sanitation program, county unit. Requirements: state professional engineering license or eligibility, academic degree in sanitary engineering, two to five years of experience, according to educational qualifications. Salary $8,000. Write Columbia County Department of Health, 363 Allen St., Hudson, N. Y.

Chief Industrial Hygiene Engineer—Salary range $6,900-$8,580. At least five years' experience in supervisory or advanced technical assignments in industrial hygiene engineering. College degree with major in engineering supplemented by a master's degree in industrial hygiene engineering. Social Security, plus state retirement coverage. Write to Alfred T. Johnson, Personnel Director, Oregon State Board of Health, P. O. Box 231, Portland 7, Ore.

Public Health Sanitarians—Salary range $6,015-$6,735. Work in generalized program at county health department, 17 miles from downtown Detroit. One day vacation and sick leave earned per month, liberal retirement with Social Security. Age not over 50. Training: B.S. in sanitary science or civil engineering with sanitary option, or B.S. degree in allied science, plus one year experience. Apply Wayne County Civil Service Commission, 628 City-County Bldg., Detroit 26, Mich.

Health Educators—$415-$481 or $481-$556 per month, depending on experience. San Francisco Bay Area. Progressive, growing department. Requires M.P.H. or college graduate, plus two years' health education experience. Alameda County Civil Service, 188 12th St., Oakland 7, Calif.

Public Health Educator III—Initiate and develop school-community health education programs in a multicounty district. Desirable qualifications: M.P.H. degree, plus two years' experience in health education; sound working knowledge of principles of education and methods of teaching. Salary $482-$577 per month. Travel allowance, vacation, sick leave, retirement, group insurance plans. Write Dr. Amy L. Hunter, Director, Bureau of Maternal and Child Health, Wisconsin State Board of Health, Madison 2, Wis.

Assistant Superintendent of Hospitals and Institutions—Open to male resident citizens of the United States who possess the minimum qualifications. Salary range $6,136-$7,436 per annum. Complete details may be secured by writing to Personnel Director, Municipal Bldg., Hartford, Conn.

Opportunities for **Health Educator, Physical Therapist, and Director of Vital Statistics**—Virginia. Liberal vacation, sick leave, state retirement, Social Security, and merit system status. Director of Vital Statistics—Richmond. Salary range $7,032-$8,784. Completion of major in mathematics, including six semester hours in statistics and three years' experience, preferably in public health statistics. Health Educator—Fairfax County. Salary range $5,352-$6,672. College degree, major or minor in journalism or public relations and three years' experience. Physical Therapist—Fairfax County. Salary range $5,120-$6,120. Eligible for license in Virginia; three years' experience. Write Personnel Director, State Health Department, Richmond, Va.

Medical Technologist II—Open to male and female resident citizens of the United States who possess the minimum qualifications. Salary range $86-$103 weekly. Complete details may be secured by writing to Personnel Director, Municipal Bldg., Hartford, Conn.

Medical Technologist (Male or Female)—Interesting career opportunity with a secure future with Oakland County in Detroit metropolitan area. Salary $4,800 to start, with merit increases to $5,200 in two years. Retirement plan, Social Security, life insurance, hospitalization, paid vacation, sick leave, and other fringe benefits offered. Must have B.A. degree in medical technology or be registered with the ASCP. Apply at Personnel Office, Oakland County Office Bldg., 1 Lafayette St., Pontiac, Mich.; FEderal 3-7151.

Oral Hygienist—to promote a program of dental health education and provide prophylaxis and applications of fluoride to school children on a demonstration basis. Requirements: certificate from an accredited school of dental hygiene; eligibility for licensure in Alabama. Salary $3,360-$4,320, plus mileage and per diem. Liberal personnel policies, retirement plan, Social Security. For further information, contact Personnel Officer, State Health Department, State Office Bldg., Montgomery 4, Ala.

Public Health Nurse—Generalized public health program, Napa County, 50 miles from San Francisco. Salary range $358-$436; liberal benefits; starting salary dependent on training and experience. Automobile required; car allowance. For job description and application contact Sterling S. Cook, M.D., Director of Public Health, P. O. Box 749, Napa, Calif.

Director—Combination public health nursing agency. Excellent personnel policies, including health insurance and retirement. Apply: Mr. Doug Bowers, 1206 Exchange Ave., Oklahoma City, Okla.

Sanitary Engineer—for director of department, City Health Department in city of 41,000. Must have B.S. degree in sanitary engineering and administrative experience. Classified under state merit system. Salary $494-$630. Excellent staff and working conditions. Contact R. B. Riddle, City Manager, 201 Joplin Ave., Joplin, Mo.

POSITIONS WANTED

On Box Numbers, Address APHA at 1790 Broadway, New York 19, N. Y.

Veterinarian—Highly trained and experienced in food inspection and production, sanitation, animal medicine, teaching, veterinary preventive medicine, research and development, administration, organization, writing, personnel. Married. Now senior officer in Army Veterinary Corps contemplating retirement. Seeking responsible, active, permanent employment with state, county, city or nonofficial organization. **Box V-22,** Employment Service, APHA.

Supervising Sanitarian—Age 35, married, four children. B.S., food technology, M.P.H. sanitary science. Seven years' experience in the food industry, including supervisory capacities. Eight years' experience as food and environmental public health sanitarian. Registered in two states. Active in professional organizations. Midwest or Great Lakes area preferred. **Box S-35,** Employment Service, APHA.

Industrial Nurse Administrator, Consultant—Graduate of Grade A school of nursing, single, female, seeks administrative or consultant post in industrial nursing with large company or progressive organization. Good

academic background and experience in industrial nursing administration. Currently employed. **Box C-46,** Employment Service, APHA.

Sanitary Engineer—B.S.C.E., M.S.; 42. F.A.P.H.A.; A.M., ASCE; Member, AWWA, FSIWA, ASTM&H, Delta Omega; certified ASEIB; licensed home state. Six years with state health department reviewing water and sewerage plans and operation of plants; one year undergraduate sanitary engineering teaching (part time); 11 years foreign experience in eight countries with international health agency. Interviews possible midwest United States early July, 1959. Desires employment in the United States beginning February 1, 1960. **Box E-40,** Employment Service, APHA.

Old Wives Tales Still Not Dead

A tuberculosis association reports that "An executive director of a TB and Health Association, reports that a helpful citizen recently called to give her the following cure for TB. Take ⅔ cup of olive oil, ⅓ cup of rum, and add brown sugar to taste. Take one teaspoonful every hour and increase to one tablespoonful as the cough increases. While you are taking this remedy be sure to carry in your mind constructive suggestions.

"This helpful citizen got the recipe from an old Indian guide and wants to assure us that it is a sure cure."

BOOK REVIEWS

All reviews are prepared on invitation. Unsolicited reviews cannot be accepted.

HOUSING CODES—THE KEY TO HOUSING CONSERVATION—A three-volume report dealing with minimum housing standards, jointly sponsored and financed by the New York State Division of Housing and the Housing and Home Finance Agency, Urban Renewal Administration. New York, N. Y.: Bureau of Community Development, State Division of Housing (270 Broadway), 1958.

The study project conducted by the New York State Division of Housing included the five following major phases: (1) collection of information concerning content of local housing codes, as well as procedures employed in their administration and enforcement in 53 cities, towns, and villages, and three counties in New York State and 19 other cities located in northeastern and middlewestern states; (2) detailed analysis of legal procedures and precedents associated with the regulation of housing under New York State law, as well as under ordinances and administrative methods employed by local communities in New York State; (3) drafting of performance-type housing standards; (4) conduction of conferences throughout the state to discuss the content of the proposed code and administrative guide; and (5) publication of study findings and code.

The results of the housing code study have been published in a three-volume report entitled: (1) "Code Enforcement Problems and Recommendations" (72 pp.); (2) "Minimum Housing Standards Ordinance" (79 pp.); and (3) "Administrative Guide for Local Programs" (34 pp.).

"A Proposed Housing Ordinance," developed by the American Public Health Association and first published in 1952, has been utilized extensively as a source of material in developing the "Minimum Housing Standards Ordinance." The three-volume report is the best, currently available, compact source of information relating to content, enactment, administration, and enforcement of a local housing code. All local health officers whose interests embrace the field of housing code enforcement can profit from study of the report. It is highly recommended as "required reading" by health officers who have as yet not become interested in the conservation of our existing housing inventory.

The reviewer is of the opinion that a novice in the realm of housing code enforcement, after reviewing the three volumes, may tend to conclude that protection of the as yet unblighted housing inventory depends mainly on concern for the administrative mechanisms associated with the physical characteristics of dwelling structures. The overtones of this theme are brought out repeatedly in the report and are exemplified by statements such as "Potentially, the building department is in a stronger position to become a more effective instrument for urban development than any other municipal agency."

The realistic and experienced housing code enforcement officer is aware that changing the dwelling habits of a substantial percentage of the inhabitants of our badly blighted areas is the most difficult problem to solve if we are to successfully conserve our housing inventory. An adequate health department should be in a much better position to cope with this aspect of the total program than even the best building inspection department.

The moral to be learned by health officers who study the report is well expressed in the following statement, taken from the report, "The choice of enforcement agency is usually determined by the initiative shown in the formulation of the program." E. R. KRUMBIEGEL

PROGRESS IN PSITTACOSIS RESEARCH AND CONTROL—Edited by F. R. Beaudette. New Brunswick, N. J.: Rutgers University Press, 1958. 256 pp. Price, $5.00.

The volume is a record of proceedings of the Second Symposium on Psittacosis in New York City, February, 1958, under the auspices of Rutgers University with a grant from the Hartz Mountain Products Corporation. This firm and others associated with it are the largest dealers of psittacine birds in the United States and sellers of the associated necessary food supplies. The interest of the owners, Messrs. Stern, in attempting to document the available scientific knowledge with regard to this disease of human beings and pet birds, has served to bring together an outstanding group of virologists, epidemiologists, and epizootiologists. Their remarks are stimulating, provocative, and factual.

The symposium reported upon dealt with the broad field of the ecology of disease. This is in contrast to the first symposium held under similar auspices. Dr. Beaudette, the guiding figure throughout both symposiums, died prior to publication of this book; his work of editing was completed by Dr. Morris Pollard in a manner deserving special commendation. The foreword by Dr. Richard E. Shope of the Rockefeller Institute should be read by all having intentions of delving into the publication.

The book is recommended as well worth the cost to all health officers, epidemiologists, veterinarians, and others interested in animal-human disease contact problems.

The portion of this book devoted to psittacosis-like organisms of mammals is indeed thought-provoking and should certainly stimulate further study in this area. The reported death of human contacts associated with episodes of psittacosis (ornithosis) in turkeys is of striking public health significance. Of no less concern and a source of considerable puzzlement to me has been the method of economic salvage practiced with obviously infected and contaminated carcasses. The large question in my mind is why certain organs, such as the hearts and livers, exhibiting infection macroscopically were condemned, yet the carcasses which provided the environment for these organs were deemed fit and passed. Needless to say, poultry and meat inspection technics in our country are an enigma at times.

OSCAR SUSSMAN

RECENT OUTBREAKS OF INFECTIOUS DISEASES—By S. Leff. London, England: H. K. Lewis (P.O. Box 66, 136 Gower St.), 1957. 408 pp. Price, £1.15s.

One of the most important duties of a health officer is to be ready to act promptly and effectively when there is an occurrence of epidemic disease in his jurisdiction. What to do, how to do what is necessary, and why, cannot be learned alone from books. Yet every student of public health can learn much from the experience of his predecessors as reported in the literature. As Leff points out, "each outbreak, with its own characteristics, always has some lessons to help us tackle the next one." Such a casebook of epidemics was published by H. Harold Scott in 1934 and covered outbreaks from 1854 to 1933. Cholera, typhoid and paratyphoid fevers, diphtheria, scarlet fever, food poisoning, and dysentery were the diseases represented.

Leff indicates that some of these diseases have been virtually banished, and others have taken their place. New problems have arisen, so that his volume deals with smallpox, poliomyelitis, Q fever, psittacosis, Bornholm disease, as well as food poisoning, diphtheria and typhoid and paratyphoid fevers. Curiously enough, for a book dealing with infectious diseases, there are two sections on lead poisoning and atmospheric pollution. The period covered extends from 1940 to the present. How they

came to be included is not really explained, but the author justifies their presence on the ground that they "illustrate some of the newer problems in an industrial society." While this may apply to air pollution, one cannot help but raise a quizzical eyebrow at this characterization of lead poisoning.

At any rate, each section discusses the history, etiology, incidence and prevalence, clinical features, treatment and epidemiology of the given conditions, and then presents one or more outbreaks that illustrate the discussion. The analysis of each outbreak is carried out in some detail. While the outbreaks all occurred in Britain, reference is made to non-British events and literature. Despite its somewhat inapt title, this volume can serve a useful purpose in providing supplementary readings for students of public health and medicine.

While the books by Scott and Leff are undoubtedly useful, it is not inappropriate to suggest that an epidemiological casebook covering American outbreaks and experiences would find a ready audience. What we need is "Eleven Blue Men" with more technical and scientific sophistication. GEORGE ROSEN

POPULATION: AN INTERNATIONAL DILEMMA—By Frederick Osborn. New York, N. Y.: Population Council (230 Park Ave.), 1958. 90 pp. Price, $2.00.

This little book is a brave effort to epitomize the information of 35 specialists on world-wide geography and human progress since the dawn of history. The book is in two sections of which the first presents the political, economic, religious, and cultural aspects which pertain to the growth of population. Now it is no easy task to deal with such a wide, diverse field varying from Hinduism to technology, with so much that is known and unknown, with so many opinions influenced by other religious heritages, and all in short paragraphs confined within the bounds of truth. The result has been, in places, a leveling process with general rather colorless and not always easy terms. Yet there is great information here, and it is up to date. It leaves one wondering how Ireland, in such a universal practice, has managed to be somewhat different, and everyone will be eager to learn more of Latin America about which "any general statements are dangerous." The second section is on "the indicated lines of action" and here the author is on a chosen ground and puts the available knowledge with clarity, fluency, and great skill, joining the control of population numbers to the public health, its natural ally, and the one which, in the field of human betterment, has perhaps the best record during the last century. Thus this vital problem is full of hope. H. C. WILKINSON

CLINICAL EPIDEMIOLOGY—By John R. Paul. Chicago, Ill.: University of Chicago Press (5750 Ellis Ave.), 1958. 291 pp. Price, $5.00.

This is a welcome volume that teachers can use as a textbook and many practitioners and public health workers will read for profit. Today, when it has become fashionable to launch attacks "on wide ecological fronts" against practically any problem in noninfectious disease, there is need for this lucid, down-to-earth text. "Clinical Epidemiology" reviews background, tactics, and strategy for those who, with little experience with infections, will be the ones to initiate attacks on cancer, mental disease, accidents, radiation hazards, and alcoholism.

Students, too, are given a sound introduction to a small part of that larger field (epidemiology) which in itself is only the medical part of the most important study of mankind—ecology. For those interested in infectious diseases the book will be of particular use, for

it is based in great part, as is epidemiology itself, on progress gained from investigations of specific communicable diseases.

Part I is devoted to a consideration of medical, preventive medical, and epidemiological terms and concepts. Two worth-while chapters of historical material are included also.

Part II covers principle, with attention first given to etiology, followed by five chapters on experimental epidemiology, mortality rates, morbidity rates, charting technics, and experimental population data, respectively. Next come four chapters on epidemiological features of host and environment.

Part III reviews pertinent features of diseases chosen to demonstrate basic epidemiological principles. These include three viral diseases, one bacterial disease, and one noninfectious illness. The chapter on arthropod-borne infections is superbly adapted to illustrate ecological factors that determine distributions of disease. THEODORE H. INGALLS

SIGNS, SYMPTOMS AND TREATMENT OF CERTAIN ACUTE INTOXICATIONS (2nd ed.)—By William B. Deichmann and Horace W. Gerarde. Springfield, Ill.: Thomas (301-327 East Lawrence Ave.), 1958. 154 pp. Price, $3.75.

This is the second edition of a handbook originally prepared in 1955 by Dr. Deichmann, professor and chairman of the Department of Pharmacology at the University of Miami School of Medicine, for the use of interns and residents on emergency service at the Jackson Memorial Hospital in Miami, Fla. The current edition prepared with the assistance of Dr. Gerarde, head toxicologist of the Esso Research and Engineering Company, contains twice as much material as the first edition, including the addition of several hundred new chemical substances.

The book is divided into two major parts—the first part with about 25 pages is devoted to material on first aid, suggestions for general supportive medical treatment, and a summary of specific drugs and dosages for treating various types of poisoning. This portion is essentially like that seen in other similar compendiums, except that it includes brief descriptions of mouth-to-mouth artificial respiration, the technic of open cardiac massage, and emergency tracheotomy.

The second part, which covers about four-fifths of the book, consists of an alphabetical list of specific substances and types of chemicals that number nearly 400 with short descriptions of signs, symptoms, and treatment for each.

The descriptions of the symptoms and treatments of snake bites and poisonous fish are more detailed and thorough than that usually included in handbooks of this type. The recommended treatment for snake bite includes a reference to the excision or "coring out" of the mass of sticky black material injected through the fangs of a snake bite as an early first-aid measure which could be an excellent expedient and which is usually omitted from most first-aid directions and emergency treatment instructions for physicians. The extra detail is an example of one of over ten different "guest contributions" by various specialists that are included in the handbook.

Although intoxication by overdoses of aspirin is recognized as being very important, and an estimate of over 100,000 cases per year that require medical attention is made, the discussion of its treatment is condensed into only four or five lines. An interesting and amusing typographical error is noted in the listing and discussion of inert ingredients where a reference is made to the statement frequently found on labels of many commercial products "not to be taken *literally*" (the italic is the reviewer's). The reference must obviously have been

intended to read: "not to be taken internally"; nevertheless, as printed it could very appropriately cover much of the ballyhoo on the labels of certain highly advertised products.

In general, the material presents a useful abbreviated compilation in handbook format of helpful material in the diagnosis and treatment of acute poisoning episodes. It should be of use to general practitioners, as well as the interns and residents on emergency service for whom it was primarily intended.

EDWARD PRESS

HANDBOOK OF CARDIOLOGY FOR NURSES—By Walter Modell and Doris Schwartz (3rd ed.). New York, N. Y.: Springer (44 East 23rd St.), 1958. 328 pp. Price, $4.50.

The advances in the prevention, care, and treatment of cardiovascular disease have been dramatic during the past few years. Nurses will find the third edition of this book very helpful.

Almost every chapter includes specific suggestions for nursing care and support of the patient. Several chapters are devoted to the nursing care of both the child and the adult with cardiovascular disease. Nurses are accustomed to following orders of the physician, but nurses too have responsibilities, which the authors emphasize.

They suggest ways in which continuity of care can be maintained when the patient leaves the hospital. This is a particularly crucial time for both the patient and his family and the transition from the hospital to the home should be made as easy as possible.

Although the book is directed toward the patient with cardiovascular disease, the principles of care can be applied to all illnesses, whether acute or chronic. The book reminds us that first of all the patient is a person. Regardless of the type of illness he has, the patient needs the best nursing care and all of the support and understanding we can give him.

This book will be helpful to nurses in caring for patients with cardiovascular disease. ELIZABETH J. HAGLUND

BOOKS RECEIVED

Listing in this column acknowledges the receipt of books and our appreciation to the senders. Space and the interests of readers will permit review of some, but not all, of the books listed.

ALCOHOL IN ITALIAN CULTURE. Giorgio Lolli, et al. Yale Center of Alcohol Studies. Glencoe, Ill.: Free Press, 1959. 140 pp. Price, $4.00.

ATOMIC MEDICINE (3rd ed.). Edited by Charles F. Behrens. Baltimore, Md.: Williams and Wilkins, 1959. 705 pp. Price, $15.00.

BREAST CANCER. FACTORS MODIFYING PROGNOSIS. A. J. Delario. New York, N. Y.: Macmillan, 1959. 208 pp. Price, $7.50.

CHEMISTRY OF INDUSTRIAL TOXICOLOGY (2nd ed.). Hervey B. Elkins. New York, N. Y.: Wiley, 1959. 452 pp. Price, $11.50.

CHILDBEARING BEFORE AND AFTER 35. Adrien Bleyer. New York, N. Y.: Vantage Press, 1959. 119 pp. Price, $2.95.

GROUP PROCESSES. Transactions of the Fourth Conference October 13-16, 1957. Edited by Bertram Schaffner. New York, N. Y.: Josiah Macy, Jr. Foundation, 1959. 266 pp. Price, $4.50.

GROUP PSYCHOANALYSIS. B. Bohdan Wasswell. New York, N. Y.: Philosophical Library, 1959. 306 pp. Price, $3.75.

GROUP PSYCHOTHERAPY—THEORY AND PRACTICE (2nd ed.). J. W. Klapman. New York, N. Y.: Grune and Stratton, 1959. 301 pp. Price, $6.75.

HEALTH INSURANCE. O. D. Dickerson. Homewood, Ill.: Richard D. Irwin, 1959. 500 pp. Price, $6.00.

IMMUNITY AND VIRUS INFECTION. Victor A. Najjar. New York, N. Y.: Wiley, 1959. 262 pp. Price, $10.50.

INDUSTRIAL ENVIRONMENT . . . ITS EVALUATION AND CONTROL. SYLLABUS FOR SHORT COURSES FOR INDUSTRIAL HYGIENE ENGINEERS AND CHEMISTS. Presented at the Occupational Health Field Headquarters, Cincinnati, Ohio. Washington, D. C.: Gov. Ptg. Office, 1958. Price, $2.75.

MANUAL FOR THE APHASIA PATIENT. Mary C. Longerich. New York, N. Y.: Macmillan, 1958. 277 pp. Price, $4.75.

MATERNITY—A GUIDE TO PROSPECTIVE MOTHERHOOD. Frederick W. Goodrich, Jr. New York, N. Y.: Prentice-Hall, 1959. 130 pp. Price, $1.75.

MEDICAL EDUCATION—ANNOTATED BIBLIOGRAPHY 1946-1955. World Health Organization. New York, N. Y.: Columbia University Press, 1958. 391 pp. Price, $6.75.

MENTALLY RETARDED IN SOCIETY, THE. Stanley P. Davies and Catherine G. Ecob. New York, N. Y.: Columbia University Press, 1959. 248 pp. Price, $5.50.

ONSET OF STUTTERING, THE. RESEARCH FINDINGS AND IMPLICATIONS. Wendell Johnson and Associates. Minneapolis, Minn.: University of Minnesota Press, 1959. 243 pp. Price, $5.00.

ORIGINS OF CRIME—A NEW EVALUATION OF THE CAMBRIDGE-SOMERVILLE YOUTH STUDY. William and Joan McCord. New York, N. Y.: Columbia University Press, 1959. 219 pp. Price, $6.00.

PAMPHLETS—HOW TO WRITE AND PRINT THEM. Alexander L. Crosby. New York, N. Y.: National Publicity Council, 1959. 32 pp. Price, $1.25.

PERSPECTIVES IN VIROLOGY. Edited by Morris Pollard. New York, N. Y.: Wiley, 1959. 312 pp. Price, $7.00.

PRINCIPLES OF ADMINISTRATION APPLIED TO NURSING SERVICE. H. A. Goddard. World Health Organization. New York, N. Y.: Columbia University Press, 1958. 108 pp. Price, $4.00.

PROTECTION IN DIAGNOSTIC RADIOLOGY. Edited by B. P. Sonnenblick. New Brunswick, N. J.: Rutgers University Press, 1959. 346 pp. Price, $7.50.

PSYCHIATRIC AIDE, THE. A TEXTBOOK OF PATIENT CARE (2nd ed.). Alice M. Robinson. Philadelphia, Pa.: Lippincott, 1959. 200 pp. Price, $3.50.

PUBLIC ASSISTANCE RECIPIENTS IN NEW YORK STATE. JANUARY-FEBRUARY, 1957. A STUDY OF THE CAUSES OF DEPENDENCY DURING A PERIOD OF HIGH-LEVEL EMPLOYMENT. Eleanor M. Snyder. Albany, N. Y.: State of New York, Interdepartmental Committee on Low Incomes, 1958. 159 pp.

RECENT ADVANCES IN RESPIRATORY TUBERCULOSIS. Frederick Heaf and N. Lloyd Rusby (5th ed.). Boston, Mass.: Little, Brown, 1959. 284 pp. Price, $8.00.

FLORENCE SABIN—COLORADO WOMAN OF THE CENTURY. Elinor Bluemel. Boulder, Colo.: University of Colorado Press, 1959. 238 pp. Price, $5.50.

SALARIES AND RELATED PERSONNEL PRACTICES IN VOLUNTARY SOCIAL AND HEALTH AGENCIES IN NEW YORK CITY, SEPTEMBER, 1958. New York, N. Y.: Community Council of Greater New York, Research Department, 1959. 50 pp. Price, $1.25.

SELECTED MATERIALS ON ENVIRONMENTAL ASPECTS OF STAPHYLOCOCCAL DISEASE. Communicable Disease Center Training Program. Washington, D. C.: Gov. Ptg. Office, 1959. 289 pp. Price, $1.50.

SELECTED MATERIALS ON STAPHYLOCOCCAL DISEASE. Communicable Disease Center Training Program. Washington, D. C.: Gov. Ptg. Office, 1958. 237 pp. Price, $1.25.

SYMPTOM AS COMMUNICATION IN SCHIZOPHRENIA, THE. Edited by Kenneth L. Artiss. New York, N. Y.: Grune and Stratton, 1959. 233 pp. Price, $5.75.

UNCONSCIOUS IN HISTORY, THE. A. Bronson Feldman. New York, N. Y.: Philosophical Library, 1959. 269 pp. Price, $4.75.

UP FROM PUERTO RICO. Elena Padilla. New York, N. Y.: Columbia University Press, 1958. 317 pp. Price, $5.00.

URBAN SPRAWL AND HEALTH. Report of the 1958 National Health Forum conducted by the National Health Council, March 17-19, 1958, Philadephia, Pa. New York, N. Y.: The Council, 1959. 288 pp. Price, $1.75.

A SELECTED PUBLIC HEALTH BIBLIOGRAPHY WITH ANNOTATIONS

Raymond S. Patterson, Ph.D., F.A.P.H.A.

Even as We—Health people hereabouts who are still struggling against apathy, ignorance and/or inspired cupidity in the matter of fluoridation of water supplies will find much of interest and some consolation in this debate held by the London (England) Natural Health Society. All the old, and some new, twists in the alleged facts were further twisted.

ANON. A London Debate on Fluoridation. M. Officer 101, 7:93 (Feb. 13), 1959.

Lead in Paints—In the last quarter-century 631 Baltimore children have been found to have lead poisoning: 115 died. To help stop the slaughter the city enacted an ordinance last year requiring appropriate labeling of containers holding paint with more than 1 per cent lead. This brief editorial item closes a symposium on lead hygiene that may be of interest to more than just the industrial hygienists among us.

ANON. Baltimore Lead Paint Labeling Ordinance. Indust. Med. 28, 3:164 (Mar.), 1959.

Wholesale Lunches—A half-million hungry industrial workers in small plants spread over a ten thousand square mile area present a big-time luncheon hazard. Nowadays a thousand trucks are doing a $30 million business supplying coffee-break and luncheon service to most of the half-million. The sanitary problems involved and the health department supervisory measures are very briefly but usefully recounted.

ANON. Lunch Trucks Deliver Hot Food in Bulk to Small Factories. Modern San. 11, 2:29 (Feb.), 1959.

Old Folks at Home—These are the fundamental needs of the aged: economic security, physical effectiveness, satisfactory living space, rewarding leisure activities, social usefulness, and maintained spiritual values—says the author. This story is about the way one town's agencies worked together to help meet these needs.

AUSTIN, C. L. The Basic Six Needs of the Aging. Nursing Outlook 7, 3:138 (Mar.), 1959.

Another P-C Center—A two-year experience in working up a poison control center is discussed in the expectation that what happened in Cleveland will be helpful to others who may be undertaking a similar venture in some other town—large or small. Essential to success is a qualified professional person on the job, and a budget adequate to pay him. In addition to saving lives such a center can do a big preventive job.

BIDDER, T. G., et al. Organization and Operation of a Poison Control Center. J.A.M.A. 169, 10:1028 (Mar. 7), 1959.

Nutritionist at Work—"Food is the largest single controllable factor affecting health, therefore . . . (a nutritionist) could be of value in a department whose aim is to promote health and prevent disease" says the writer who describes the work of a British dietitian in a public health department. Our local professionals will find interesting differences in programs there and here and these may prove usefully suggestive.

CHAPMAN, M. Public Health Dietitian. M. Officer 101, 10:135 (Mar. 6), 1959.

Rustic Rabies—Trapping foxes will reduce their numbers for a while but such reductions will not necessarily improve the rural rabies situation where the disease has been endemic. Also one cannot be sure that killing all the foxes would be a good thing if it could be done —Nature being the unpredictable lady she is.

DAVIS, D. E., and WOOD, J. E. Ecology of Foxes and Rabies Control. Pub. Health Rep. 74, 2:115 (Feb.), 1959.

The People's Teeth—Six steps to success in a community dental health program—survey, analysis, planning, operation, financing, and appraisal—are formally presented in an address before an Asian Congress.

ELWELL, K. R. Public Health Dentistry: Its Principles and Approach to Community Programs. J. Am. Dent. A. 58, 3:98 (Mar.), 1959.

Is This a New Idea?—Discussing the relative blessings and hazards of home and hospital for uncomplicated deliveries a British writer has this to offer: "I would like to see the normal mother and baby discharged home 48 hours after delivery and then nursed as though the district were a disbursed lying-in ward . . . (for) a high proportion of babies are not colonized by hospital bacteria until after the third day."

FITZGERALD, T. B. "Normal Midwifery." Lancet 7069:403 (Feb. 21), 1959.

Can Cancer Be Cured?—Grim reading indeed is this consideration of the as yet unmeasured ability of the human body occasionally to check cancer growth for many, many years following incomplete removal—a phenomenon revealed in reported case after reported case. Underscored by this record is a half-century-old pronouncement to the effect that no matter how early the cancer is detected and how thorough is the treatment, no patient is freed from the possibility of recurrence until death ensues from some other cause. This isn't exactly material for cancer education, but it is something the educator might very well keep in the back of his mind.

GORDON, TAYLOR G. The Incomputable Factor in Cancer Prognosis. Brit. M. J. 5120: 455 (Feb. 21), 1959.

For Mental Health—This wide-ranging and hopeful review of the present state of preventive measures against mental illnesses will be of interest to many readers other than our psychiatric brethren—who will of course have digested the entire symposium for which this paper lays the groundwork.

GRUENBERG, E. M. Prevention of Mental Disorders. J. Chronic Dis. 9, 3:187 (Mar.), 1959.

One More for the Record—Natural fluorides in the drinking waters of Macon, Savannah, and Moultrie (Ga.) are respectively 0.1, 0.38, and 0.75 ppm. Moultrie had twice the number of children caries-free as Savannah children, and two and a half times this number of those in Macon.

LEWIS, F. D., JR., and LEATHERWOOD, E. C., JR. Effect of Natural Fluorides on Caries Incidence. Pub. Health Rep. 74, 2:127 (Feb.), 1959.

Children's Hearts—A large group of children were screened for heart disease by three methods—a single-lead cardiograph, a minature chest x-ray, and a limited physical examination. The last method was the most productive, the roentgenogram the least. None was infallible.

MORTON, W., et al. Comparison of Three Methods of Screening for Pediatric Heart Disorders. J.A.M.A. 169, 11:1169 (Mar. 14), 1959.

Advice to a Superintendent—For five years the schools of a New York community have had the services of an advisory council in health matters. Thus far all suggestions have been accepted by the district superintendent. What the council has urged upon the official and how it came to its decisions are reported here in the hope that the experience may

prove suggestive and useful to other school districts.

PALMIERI, J. F. The School District Health Council: Is Its Existence Justified? J. School Health 29, 2:61 (Feb.), 1959.

Wrong Tree Barked Up?—Generally, the people who haven't been protected against poliomyelitis are those who belong to the lower-income group, have less formal education, are both apathetic and inclined to procrastinate, and are insulated from the mass media approaches customarily used. If these people are ever to be gathered into the polio-immune fold then a change of educational target and method seems to be called for, it says here.

ROSENSTOCK, I. M., et al. Why People Fail to Seek Poliomyelitis Vaccination. Pub. Health Rep. 74, 2:98 (Feb.), 1959.

Wastes Disposal—When conditions are favorable irrigation can be an effective and economical means for treating dairy, cannery, and some other industrial wastes, but the method is no sure fire cure-all even then. This conclusion is evident despite descriptions of several varieties of successful installations.

SCHRAUFNAGEL, F. H. Disposal of Industrial Wastes by Irrigation. Pub. Health Rep. 74, 2:133 (Feb.), 1959.

Shoe-Leather Epidemiology—In a small city a typhoid carrier was tracked down by sampling the sewage at various manholes until the block where the carrier lived was established. Then a roster of hospital patients pointed to the individual carrier.

SHEARER, L. A., et al. Discovery of Typhoid Carrier by Sewage Sampling. J.A.M.A. 169, 10:1051 (Mar. 7), 1959.

It Still Happens—Three explosive (British) outbreaks of scarlet fever and sore throat are reported here. The vector was diluted canned milk, contaminated evidently by a carrier among the kitchen help. Several suggestive findings are highlighted.

TAYLOR, P. J., and MCDONALD, M. A. Milk-borne Streptococcal Sore Throat. Lancet 7068: 330 (Feb. 14), 1959.

Safety for Inspectors—Administrators may find some good ideas in this discussion of the way one city department puts teeth in its employees' dog-safety program and keeps the dogs' teeth out of the employees' britches.

TOMARS, J. Meter Readers—Dogs' Best "Friends." Water Works Eng. 112, 3:210 (Mar.), 1959.

If additional information is desired regarding the articles listed in this bibliography, please communicate directly with the publications in which they appeared; the addresses are furnished for your convenience.

Brit. M. J. (British Medical Journal), British Medical Association House, 19 Tavistock Sq., London, W.C.1, England.

Indust. Med. (Industrial Medicine and Surgery), 605 N. Michigan Avenue, Chicago, Ill.

J. Am. Dent. A. (Journal of the American Dental Association), 222 N. Superior St., Chicago, Ill.

J.A.M.A. (Journal of the American Medical Association), 535 N. Dearborn St., Chicago, Ill.

J. Chronic Dis. (Journal of Chronic Diseases), C. V. Mosby, 3207 Washington Blvd., St. Louis, Mo.

J. School Health (The Journal of School Health), American School Health Association, 3335 Main St., Buffalo 14, N. Y.

Lancet, 7 Adam St., Adelphi, London, W.C.2, England.

M. Officer (Medical Officer), Chronical House, 72-78 Fleet St., London, E.C.4, England.

Modern San. (Modern Sanitation), Power Magazines, Inc., 855 Avenue of the Americas, New York 1, N. Y.

Nursing Outlook, American Journal of Nursing Company, 2 Park Ave., New York 16, N. Y.

Pub. Health Rep. (Public Health Reports), Gov. Ptg. Office, Washington, D. C.

Water Works Eng. (Water Works Engineering), Reuben H. Donnelley Corp., 305 East 45th St., New York 17, N. Y.

CREDIT LINES

The Journal cannot furnish copies of items mentioned in Credit Lines. Please send requests to the addresses given.

Capsule Review of Minnesota Health

The December, 1958, issue of Minnesota's Health, of the State Department of Health, devotes its entire six pages to "Minnesota Men of Medicine and the People's Health," or "86 Years of Progress in Disease Control." The text of the article, which begins with the State Board of Health Act of 1872 and ends with tomorrow's problems, is that "over the years, what has been accomplished in public health has been possible in large measure because of the cooperation and support of the entire medical profession."

The stories of the Board of Health Act, of its early executive officers, of their influence in establishing the U. S. Public Health Service and the University of Minnesota School of Medicine, of early typhoid and diphtheria epidemics, of Dr. Chesley's handling of the 1916 polio epidemic will stir many memories.

This bit of Minnesota—and indeed national—history is interestingly written with numerous personal sidelights. Its example might well be copied by other state health departments.

The Bible Is Their Laboratory

Hadassah, The Women's Zionist Organization of America, in its recent newsletter carried an article by Ritchie Calder, president of the British Scientific Writers Association. His theme was that Israel is not only very young but also very old; that the sands and ruins of Israel say of many scientific matters that "We tried it once and it did work." Here are told the stories of desert colonists who built walled fields where they collected the eroded soil and thus maintained substantial populations. Their reservoirs, rock-cisterns and diversion dams were equally ingenious.

Scientists use the Bible: ". . . for he rose early on the morrow and thrust the fleece together and wringed the dew out of the fleece, a bowl full of water," in planning the development of desert plant life. Also, going back to the First Book of Kings, Israeli geologists have found appreciable reserves of metallic copper. Geologists go out to trace the Bible wells with radioisotopes. A Weizmann Institute professor said, "Of course, the aromatic gums and resins which the Queen of Sheba brought to King Solomon were polyelectrolytes." In modern synthetic form these are used in desaltification of water and, as soil-conditioners, to convert desert dust into crop-growing soil.

Here is an illustration of the continuity of science, of the fact that the new is always built upon the old, and that if the old foundations are understood, the new can be built more effectively.

Staph Infections in Hospitals

"Control of Staphylococcal Infections in Hospitals" has been published by the New York State Department of Health. It was prepared by a Joint Committee made up of representatives of the State Health and Welfare Departments, the State Medical Society, and the State and New York City Hospital Associations. There are chapters on hospital infection committees, on education of staff and personnel, on the administrator's responsibilities, and on procedures to be followed in the surgical, obstetrical and nursing services, the medical and pedi-

atric services, and in the laboratory. An appendix of references and suggested forms completes the 50-page text.

New York State Department of Health, 84 Holland Avenue, Albany, N. Y. No information as to out-of-state distribution.

Health for Effective Living

McGraw-Hill Book Company announces a new film series under the general title of "Health for Effective Living." The series is correlated with a new edition of a text book with the same title first published in 1954. (A.J.P.H. 45, 2:248 (Feb.), 1955.)

The titles of the five films are: Community Health Is up to You; Quacks and Nostrums; Should You Drink?; Making Life Adjustments; and Choosing a Doctor.

These films are available for rent at nominal rates from educational film libraries or for purchase from Text-Film Department, McGraw-Hill Company, 330 West 42nd St., New York 36, N. Y.

McGraw-Hill also has a series of seven films correlated with "Textbook of Healthful Living" by Harold S. Diehl, M.D. (A.J.P.H. 45, 9:1175 (Sept), 1955.)

Coordinating Psychiatric Aftercare

"Network" is described as "a report on coordinating psychiatric aftercare services." This 32-page pamphlet is a summary report of a 1958 meeting sponsored jointly by Pennsylvania Mental Health and Fountain House in Philadelphia. There are brief case histories of how one local and three state health departments and a state hospital developed and carried out aftercare services. The place of the psychiatric social worker was illustrated in a state hospital and in two state mental hygiene departments. Three VA hospital administrators told of their problems, particularly "the tremendous inertia in many hospitals resulting in the very slow growth of rehabilitation orientation," in helping "the patient fit into his own community."

Publication of this report—both a dignified and attractive production job—was the work of the Mental Health Education Unit, Smith, Kline & French Laboratories, Philadelphia, from which it is available.

Legal Structure of Public Health

"Public Health Laws of Pennsylvania," a volume of nearly 800 pages, in the words of Thomas Parran, M.D., "analyzes, annotates, and codifies," the legal basis of public health in the state. Following the 1948 state health survey and at the urging of the Graduate School of Public Health of which Dr. Parran was then dean, the School of Law of the University of Pittsburgh undertook to build this "structure to facilitate application of the growing body of health science for service to the community."

In a second foreword the then dean of the Law School, Charles B. Nutting, mentions a further aspiration of the project, "an opportunity to demonstrate the educational value of bringing lawyers and experts on public health together." He believes "the experiment was outstandingly successful . . . those who participated in the project developed attitudes and skills which will be useful to them throughout their professional careers."

Those with a special interest may still be able to obtain a copy of the very limited supply from the editor, David Stahl, City Solicitor, Department of Law, City of Pittsburgh, Pa.

Respective Responsibilities

The California State Department of Health, in collaboration with the California Conference of Local Health Officers, in 1957, prepared "A Handbook on

State, Local, and Joint Responsibilities." It is well worthy of examination by anyone who is concerned with this problem, and it is also noteworthy that the handbook is quite a comprehensive outline of the functions and services of health departments. There are a total of 19 major headings with 340 separate duties and responsibilities. In addition to administrative purposes within a department, the handbook might be used to orient board members and other community leaders to the breadth, depth, and character of health department work. State Department of Public Health, 2151 Berkeley Way, Berkeley, Calif. No information as to out-of-state distribution.

Adjustment of Severely Retarded

The report of a research project on "The Adjustment of Severely Retarded Adults in the Community" has been published by the New York State Interdepartmental Resources Board. This was a study of former pupils of low IQ classes held by the New York City Board of Education between 1929 and 1956. The study is based on interviews with the parents of a sample of 520 severely retarded adults selected from 2,640 former pupils of all classes for the "trainable retarded." Information was obtained on the characteristics of the retarded and his family, extent of institutionalization, adjustment to family and community, use of community resources, and employment for pay. Only a small proportion were found to have been in trouble and that usually minor. Relatively few parents evaded the issue of the future without making some provision.

This study is valuable for filling in the gaps of knowledge about the severely retarded adult to supplement extensive knowledge about the retarded child.

The study was made by the Research Center of the Graduate School of Public Administration and Social Service of New York University, under the direction of Gerhart Saenger, Ph.D., New York State Interdepartmental Health Resources Board, Room 1212, 11 North Pearl St., Albany 7.

Directory of Metropolitan Services

The "1958-1959 Directory of Social and Health Agencies of New York City" has recently been published. This biennial directory is prepared by the Committee on Information Services of the Community Council of Greater New York. As in previous editions, agencies are classified both functionally and alphabetically. Included also is the alphabetical index of personnel guiding the multiplicity of social and health agencies that serve the eight million population of New York City.

Columbia University Press, 2960 Broadway, New York 27; $7.50.

Providing a Forum

The January, 1959, issue of New Jersey's "Public Health News" is an excellent example of combining the spread of information with publicizing state or local agencies related to health services. Among the seven papers printed or extracted are two that were presented at the recent 47th annual conference on State and Local Health Officials. One of these was a report from Bucks County, Pa., telling of its success in establishing a health department.

One of the papers, stressing manpower needs, was given at a meeting of the New Jersey Council for Local Public Health Services; another was the opening address at a Workshop on Continuity of Care; a third was given at an Air-Stream Pollution Control Seminar, at the Bound Brook Plant of American Cyanamid Corporation. The remaining two were reprinted, respectively, from "World Health" on air pollution and from the "Texas Health Bulletin" on human relations in public health.

Abstracts of General Medicine

"World-wide Abstracts of General Medicine" began publication in October, 1958. It is published by the Excerpta Medica Foundation and distributed as a service to physicians by Warner-Chilcott Laboratories. In a foreword by the editors the purpose is stated to be for the "physician who wishes to keep abreast of progress in general medicine . . . Warner-Chilcott Laboratories is breaching the literary barrier by making available to the general practitioner and closely related specialists this new and unique journal."

In the preparation of the abstracts more than 3,000 medical journals from all over the world and in many languages are scanned and abstracts are made available without great delay. In addition to this service, each issue will include a practical review of an important subject by some distinguished leader in scientific medicine. The first issue's review article was on coronary thrombosis by Paul Dudley White, M.D. Editors are Morris Fishbein, M.D., former editor of the Journal of the American Medical Association, and Martinus W. Woerdeman of Amsterdam.

Excerpta Medica Foundation, New York Academy of Medicine Building, 2 East 103rd St., New York 29.

Eighty Per cent Due to Careless Drivers

The Annual Book of Street and Highway Accident Data of the Travelers Insurance Companies is entitled "The Road Toll." As in the case of earlier volumes, this is illustrated with cartoons of bitter humor. The figures indicate that careless drivers were responsible for 80 per cent of the "road toll's tragic revenue," in terms both of persons killed and persons injured. Although the number of persons fatally injured was somewhat less in 1957 than in 1956, the number of persons injured increased by about 7 per cent.

Exceeding the speed limit was by far the chief driver action resulting in personal injury or death, more than 40 per cent in each case and in each year. The 20 per cent of accidents not due to the carelessness of the driver were due to pedestrian actions. The chief reasons for these were crossing between intersections and coming from behind a parked car. A further fact indicated by the figures is that 97 per cent of the drivers involved in both fatal and nonfatal accidents had been driving a year or more.

Distribution by John G. O'Brien, The Travelers Insurance Companies, Hartford, Conn.

Ten-Year Medical Care Expenditures

The extent to which voluntary health insurance has enabled the population of the United States to budget its medical care expenditures during the past decade is summarized in the December, 1958, Social Security Bulletin. All private expenditures for medical care and voluntary health insurance practically doubled the 10-year period. During the same period insurance benefits and prepayment expenses increased nearly fivefold.

Total per capita private medical expenditures increased by nearly two-thirds, but those for voluntary insurance quadrupled. The per cent of expenditures for medical care accounted for by insurance increased from 8 to 24 per cent during the decade. The conclusion of the article is that "the $4 billion health insurance industry of 1957 obviously has had an impact on the American economy that warrants continuous attention from economists, consumers, providers of services, and the industry itself"—and one might add, public health administrators.

Social Security Bulletin, Vol. 21, No. 12, Dec., 1958. Government Printing Office, Washington 25, D. C.; 40 cents per copy, $2.75 annually.

For the Care of Diabetics

The Chronic Disease Program of the Public Health Service now has available two booklets designed to help diabetics lead a normal existence within the limitations of their condition. One, designed for the patient himself, is entitled "Taking Care of Diabetes." This is written in very simple language with illustrative drawings for each item.

The second, with the same title, is a guide for instructors in a patient education program. This is a revised edition of an original guide prepared in 1950 with the cooperation of the American Diabetes Association and the American Dietetic Association, each of which also cooperated in the present volume. The guide is so designed that it may be used also with 11 film strips and records that were recently re-released. The patient's guide is PHS Publication No. 567; the instructor's guide, PHS Publication No. 582. Each is available from the U. S. Government Printing Office, Washington 25, D. C.; 20 cents for the first, no price indicated for the second.

Low-Fat Well-Balanced Breakfast

The Cereal Institute has prepared a leaflet titled, "Are You Interested in a Low-fat Well-balanced Breakfast?" Subject matter is based on scientific library research and was reviewed by leading authorities for publication. Cereal Institute, Inc., 135 South LaSalle Street, Chicago 3, Ill., free.

A Belated Mention

For those in the field of child health and welfare who have not caught up with "Children and Youth: Their Health and Welfare," this pamphlet is recommended. Described as a "chart book," this 1957 publication of the Children's Bureau presents, in small compass, a wealth of information about the environment and background of children and youth in this country. There are 47 charts dealing with eight main subjects, each chart with a brief interpretive text. Children's Bureau Publication No. 363, Government Printing Office, Washington 25, D. C.; 50 cents.

Annual Reports

The 1958 Annual Report of the Joint Commission on Mental Illness and Health summarizes where the nation stands in mental health. The surveys completed and now in progress indicate that increasing numbers of persons are interested in establishing mental health services and in their use for managing other social problems, as well as for treatment of the mentally ill. Present services are understaffed and in large part poorly financed. Hospitals are overcrowded with a large population of chronic patients and too few professional staff. There is a shortage of bright persons who are finishing college and going on to professional schools to meet present manpower needs in this field. The patient-day costs of services for the mentally ill are far below that of other types of patients. The new and better treatments brought about through research and the development of effective rehabilitation services makes a more hopeful prognosis for mental patients, but more research is still needed.

Reports of ten studies have been completed, or are on their way, two of them in published volumes—"Current Concepts of Positive Mental Health," and "Economics of Mental Illness." Upon completion of the monographs, a final synthesizing report will be prepared for the approval of the commission. Jack R. Ewalt, M.D., is the director of the Commission, 808 Memorial Drive, Cambridge 39, Mass.

"The Los Angeles County Health Department Annual Report—1957-1958" is

an outstanding illustration of the complexity of services needed to meet the needs of some four score municipalities in a county that is both metropolitan and rural. To serve the nearly three million persons in the county outside of Los Angeles and several other cities with their own departments, the department maintains 14 district offices each in charge of a medical officer, as well as a number of subcenters. It is from these centers that the day-to-day services radiate.

The report is detailed, well organized, and scholarly. It characterizes mental health, chronic diseases, adult health, and protection against the threat of radiation activity as new challenges. It warns, however, that "it cannot be said that official public health is entering a period of transition because of the consideration of these newer subjects," because the communicable diseases, virus diseases, and gastroenteric conditions can explode violently if not under constant surveillance.

Because of the necessary complexity and detail of this accounting to the County Board of Supervisors, a simpler, more visually oriented report would probably be in order for the general public.

Roy O. Gilbert, M.D., is the county health officer, 241 North Figueroa St., Los Angeles 12, Calif.

The Grant Foundation, now in its 22nd year, says in its 1957-1958 report that it "has gradually concentrated its interest in the work of those whose concern is with the healthy emotional development of children and youth." This, however, does not mean a narrow concern as indicated by its fellowship awards to the Columbia School of Public Health and Administrative Medicine for training psychiatric residents in public health, or to the Harvard University School of Public Health for advanced training in community mental health. The most extensive support the Foundation has given to any agency is the Community Research Associates in "a ten-year enterprise of preventive planning and community-wide integration of specialized human services." Under these grants problems of dependency, disordered behavior, and indigent disability have been studied, respectively, in Winona County, Minn., San Mateo County, Calif., and Washington County, Md. These studies were reported in a special supplement of Public Welfare, in Mental Hygiene, and as a supplement (Nov., 1958) to the American Journal of Public Health.

A study of this report will bring to mind the complex of activities that touch "the healthy emotional development of children and youth." The Grant Foundation, 130 East 59th Street, New York 22.

NEWS FROM THE FIELD

WHO News

The Threat of Rabies Spread

The Pan American Sanitary Bureau recently called on both the United States and Mexican health authorities to develop a joint unified plan for dealing with the growing menace of rabies along their common border. This alert was made by Dr. James Cocozza of the bureau's Field Office in El Paso to the annual meeting of the United States-Mexico Border Public Health Association on April 3.

Over 2,700 cases were reported in the United States during 1958, more than a third of which were in the four states bordering Mexico, with Texas ranking first in number of cases. Although figures are not available it is thought that figures for Mexico are comparable.

Executive Board Meeting

WHO's Executive Board, meeting in Geneva January 20-February 3, adopted a regular 1960 budget of $16,400,000 for recommendation to the World Health Assembly meeting in May. This represents an 8 per cent increase over the estimated 1959 budget. The board also planned for a comprehensive study of the proposal for an International Health and Medical Research Year for the Assembly's consideration.

In discussing the malaria eradication program and the inadequate contributions by governments, the board invited contributions from foundations, industry, labor organizations, institutions, and individuals.

Another item to be studied by the board and presented to the assembly is the question of a larger building for WHO headquarters. WHO has outgrown its offices in the Palais des Nations where other organizations are also in need of additional space.

Henry van Zile Hyde, M.D., assistant to the Surgeon General for international health, is the United States member of the board.

Nutrition Reports Available

Reports of two nutrition conferences by the Food and Agriculture Organization of the United Nations, in cooperation with WHO, are now available. The first is the report of the Fourth Conference on Nutrition Problems in Latin America, Guatemala City, September 23-October 1, 1957.

The second is a report of the FAO nutrition meeting for Europe in Rome June 23-28, 1958. The two chapters of this report are entitled, "Food Consumption with Special Reference to Fat Consumption" and "Education and Training in Nutrition."

Each pamphlet is available from the Columbia University Press, 2960 Broadday, New York 27, N. Y.; $1 and 50 cents, respectively.

Influenza Around the World

At the end of February a WHO news release summarized the "spread in acute respiratory infections, influenza, and influenza-like illnesses in a number of countries." In Czechoslovakia, Denmark, France, the Netherlands, Switzerland, and Yugoslavia a B-type virus is incriminated—in Great Britain, both A and B. In India investigation indicates A2 (Asian) strains are responsible. The incidence of these respiratory illnesses has also risen sharply in Canada.

In the United States outbreaks of influenza B have been reported in five areas: eastern Massachusetts, the Washington, D. C., metropolitan area, southern Michigan, northern Indiana, and central Iowa (also 1790 Broadway, New York City).

Is Cholera a Growing Menace?

WHO reports that the 1958 incidence of cholera was higher than at any time since 1953. In Asia the 93,000 cases represented an increase of about 45 per cent over 1957. The most serious epidemics were in India and Pakistan. In Thailand, which has been without an epidemic in recent years, nearly 10,000 cases were reported.

India's $31,500 for Malaria Fund

The Government of India, with a recent pledge of $31,500 to WHO's Malaria Eradication Special Account, became the 17th country to contribute to the fund for the world-wide fight against malaria. India is further the first country from Southeast Asia to make a contribution. Its pledge is the fourth largest to date by any country. The fund is now over eight and a quarter million of which the United States government has contributed eight million dollars.

Conference on Homemaker Services

"Homemaker Services should be available to any family or individual who needs them." This is reportedly the basic new concept in social planning set forth by the National Conference on Homemaker Services, held in Chicago, February 10 and 11, 1959. About 400 persons attended. The conference was sponsored by 26 voluntary agencies and eight units of the U. S. Department of Health, Education and Welfare at the call of the Children's Bureau on request of the National Committee on Homemaker's Service. Edward Press, M.D., director of field services, represented the American Public Health Association.

Previous to the conference the Public Health Service had made a nation-wide study which indicated 145 different agencies providing homemaker services in 32 states and the District of Columbia. These served more than 2,000 families during a week in the spring of 1958. The documents arising out of this study, including a national directory of services, are PHS publication Nos. 598, 644, and 645.

Four basic recommendations were made at the Chicago meeting: that the National Conference on Homemaker Services take steps "without delay to sponsor a multi-discipline study and evaluation; a mechanism be established to study programs and help communities interested in developing or expanding programs of home care; the conference findings be made available to national voluntary agencies and their affiliates and to state departments of public welfare and that the 1960 White House Conference on Children and Youth and the 1961 Conference on Aging include material on homemaker services in their agenda; the National Committee on Homemaker Services be encouraged, because of its experience and wide geographical representation to accept national leadership for coordination, stimulation, and research in this field."

Proceedings of the conference will be available at a later date. Currently available is a six-page summary in the Social Legislation Information Service of February 29. 1346 Connecticut Ave., N.W., Washington 6, D. C.; 25 cents.

How One Works for Health Services

"How Do We Work Together for Better Community Health Services" was discussed at the 11th annual meeting of the National Advisory Committee on Local Health Departments. The one-day meeting was held in Chicago on March 16 preceding the National Health Forum of the National Health Council.

Three background speakers opened the discussions—Chloe Gifford, president of the General Federation of Women's Clubs, who discussed citizen responsibility for health services and the need for the professional to involve the citizen, particularly the woman citizen, and keep

him informed. Representing national voluntary health agencies was Dean Roberts, M.D., director, National Society for Crippled Children and Adults. Dean Roberts carried out the same theme quoting Alexis de Tocqueville to the effect that, "The health of a democratic society may be measured by the quality of functions performed by private citizens." Further, Dr. Roberts said, "It is essential that voluntary and public agencies join together in community planning" and "voluntary agencies . . . must have a broad outlook on the needs of the community."

The third speaker, Joseph G. Molner, M.D., health officer of Detroit and Wayne County in Michigan, represented official agencies. The objective of any health agency "official or non-official, is the performance of a complete and comprehensive public health service, for all facets of the community regardless of race, color, creed, or economic status." He gave numerous examples of how health programs in his area had been successful through community organization and a continuous program of community cooperation. (Because Dr. Molner was ill his paper was read by Clarissa Boyd of the National Tuberculosis Association.)

A unique experiment was tried at the luncheon. A dialogue, monitored by the NACLHD chairman, Howard Ennes, on "Can We Get Along Without Effective Official Community Health Agencies?" was carried on by three official agency staff members. R. F. Sondag, M.D., health officer of Jackson County, Ill., said, "Yes, we can get along without them—we can also get along without bathtubs, but do we want to, should we want to?" Jackson Birge, M.D., an Illinois state district health officer, stressed that planning at the professional level must somehow be interpreted and translated into community action. A. B. Price, M.D., regional medical director of the Public Health Service, emphasized the leadership role of the official health agency and its director.

Five discussion groups were engaged in developing some "how-to-do-it" principles through case histories presented in each group. Ralph Boatman, Jr., Ph.D., director of health education, Tuberculosis Institute of Chicago and Cook County, is preparing a report of the day's meeting which will be made available to persons attending and to others.

Chairman Howard Ennes and Vice-Chairman Lou B. Paine, director of field service, Camp Fire Girls, were reelected. Jesse B. Aronson, M.D., director of local health services, New Jersey Department of Health, succeeded Robert M. Webb, staff associate, American Association for the Aid of Crippled Children, as secretary. Other members of the executive committee are:

Clarissa E. Boyd, director, Section on Field Program, National Tuberculosis Association

A. June Bricker, director, Field and Community Health Bureau, Metropolitan Life Insurance Company

William A. Brumfield, Jr., M.D., commissioner of health, Westchester County (representing the American Public Health Association)

Duncan W. Clark, M.D., professor and chairman, Downstate Medical Center, State University of New York (representing the Association of American Medical Colleges)

George James, M.D., deputy commissioner of health, New York City Department of Health (at large)

Morris Klapper, assistant executive director, National Association for Mental Health

Peter G. Meek, director, New York Office, National Society for Crippled Children and Adults

J. W. R. Norton, M.D., North Carolina state health officer (representing the Association of State Health Officers)

Glenn Reynolds, program consultant, American Heart Association

James K. Shafer, M.D., chief, Division of General Health Services, Public Health Service

Jane Sutherland, consultant, health and welfare services, Association of Junior Leagues of America

Charles F. Sutton, M.D., deputy director, Division of Local Health Services, Illinois State Department of Health (representing the

Association of State Directors of Local Health Services)

Helen M. Wallace, M.D., professor of maternal and child health, University of Minnesota (representing the National Congress of Parents and Teachers)

Dr. Freeman Assumes NHC Presidency

At the March 19 annual meeting of the National Health Council in Chicago, Ruth Freeman, Ed.D., associate professor of public health practice, Johns Hopkins School of Hygiene and Public Health, was inducted as president for the current year. As president-elect during the past year she had served as chairman of the council's Program Committee. She succeeds Norvin C. Kiefer, M.D., chief medical director, Equitable Life Assurance Society of the United States, who remains on the Board of Directors.

James E. Perkins, M.D., managing director of the National Tuberculosis Association, was chosen president-elect. Berwyn F. Mattison, M.D., executive director, American Public Health Association, succeeded Franklin M. Foote, executive director, National Society for the Prevention of Blindness, as secretary.

This annual meeting of the delegates immediately followed the final session of the 1959 National Health Forum sponsored by the council and its 65 national member agencies. An invited group of more than 500 persons shared in the three-day discussions of the health of the nation's workers, with particular reference to the $6 billion annual wage loss resulting from 500 million man-days out-of-work illness.

Keynote addresses at the opening session were given by the Honorable Arthur S. Flemming, secretary of health, education, and welfare, and A. J. Hayes, president, International Association of Machinists. Speaking at a luncheon session, Reynolds I. Nowell, vice-president and economist, Equitable Life Assurance Society, predicted a good, but not a boom year for 1959. At the forum dinner the principal speaker, Edwin J. Faulkner, president, Woodmen Accident and Life Company, made a plea for the extension of voluntary health insurance to an ever-increasing body of the population.

James H. Sterner, M.D., medical director, Eastman Kodak Company, was chairman of a committee of more than 50 that planned the 1959 forum. The forum report is being prepared by Albert Q. Maisel. The resulting volume is planned for publication in October, 1959.

The 1960 forum will direct attention to the health of older people. Edward L. Bortz, M.D., chief, Medical Service, Lankenau Hospital, and past president, American Medical Association, is chairman of the 1960 forum committee. The forum will be held in Miami Beach during the week of March 13.

Local Illinois Conference on Aging

"Adams County Analyzes Aging" is the report of a conference on aging and chronic illness in an Illinois county of about 65,000. The conference was planned by a committee representing seven Adams County health and welfare agencies; it was participated in by 213 professional workers from 37 organizations. Several of these were either out-of-county or out-of-state.

The purpose of the conference was to provide help to the agencies in developing a "Guide to Action" in meeting the needs of the community's aging, to help them to evaluate their ongoing programs, and to explore ways of carrying out a coordinated program in the community. Recommendations for action in the report number 50 in five categories—general; health and rehabilitation services; employment, preretirement, income maintenance, and retirement; housing and living arrangements; and education, recreation, and leisure time activities.

Wayne Messick, public health educator of the County Health Department,

was conference chairman. He might make the report available to other health departments that are exercising community leadership in developing plans for the aged and chronically ill of their areas. Quincy, Ill.

Unitarian Committee Nutrition Team

The Unitarian Service Committee, in cooperation with the Inter-American Institute for the Child, in late February and early March sponsored the second of an Annual Interdisciplinary Child Nutrition Symposium in Ecuador and Paraguay for South American countries. Samuel Z. Levine, M.D., pediatrician-in-chief, New York Hospital-Cornell University Medical Center, headed the team of participating physicians, nutritionists, and agriculturists. Subjects discussed were basic knowledge for the planning of food policy, methods for improving food quality, nutrition education, and the cooperation of international organizations.

This was the 32nd International Medical Exchange undertaken by the Unitarian Service Committee. Dr. Levine also led a seminar on the Health and Nutrition of the Infant in Southern European countries, in Paris, in late April. William Schmidt, M.D., associate professor of maternal and child health practice, Harvard School of Public Health, was a participant.

New Toy Safety Committee

At a recent meeting of the Health and Medical Section of the National Safety Council's Home Safety Conference, it was decided to establish a Committee on Toy Safety. The stated purpose is to develop, with the cooperation of the Toy Manufacturers Association of the U.S.A., a set of principles and practical standards on safe toys, to collect complaints regarding unsafe toys, to continue an investigation already under way on the kinds of toy accidents occurring, and to view the annual Toy Fair in March, 1959.

Chairman of the new Toy Safety Committee is James L. Goddard, M.D., chief of the Accident Prevention Program in the Public Health Service, and a member of the American Public Health Association's Program Committee on Accident Prevention. Edward Press, M.D., APHA's director of field services and chairman of a Committee on Hazards to Children of the American Standards Association, is a member. Philip Dykstra of the National Safety Council is secretary. Other members represent the Children's Bureau, health departments, Girls Scouts, and insurance companies.

At the first meeting of the committee in New York City on March 10, a plan was made to invite both state and local voluntary and official agencies to report cases of unusual or serious accidents associated with toys. The committee will then make appropriate efforts with the Toy Manufacturers Association to remedy undue hazards in the manufacture. Reports should be made to Toy Safety Committee, National Safety Council, 425 N. Michigan Avenue, Chicago 11, Ill.

City Commission on Health Services

A Commission on Health Services has been created by Mayor Wagner of New York City. In the words of its chairman, David M. Heyman, director of the New York Foundation, it is to concern itself "with the losses" in "the city's panorama of health services," with particular reference to hospital care. The hospital's losing fight against rising costs and the effect on quality of services, the aging population and increasing number of chronically ill and the resulting medical and hospital care problems, the relation of hospitals to teaching and research institutions, are some of the problems to be explored.

Ray Trussell, M.D., chairman, School

of Public Health and Administrative Medicine, Columbia University, is executive director of the commission. The members of its Technical Advisory Committee include the city commissioners of health and hospitals and their deputies, executives of four of the city's medical schools, directors of three hospitals, the chairman of the community mental health board, and the city administrator.

Starting a "Happy Custom"

Recently published is a booklet that reproduces a May, 1958, ceremony honoring Roger Irving Lee, M.D., and 10 professors emeriti of the Harvard School of Public Health. Dr. Lee, called "the chief architect in planning the present Harvard School of Public Health," was Oliver Professor of Hygiene in the university beginning in 1914, became the acting dean of the school when it was organized in 1921, and continued as a fellow of Harvard College from 1935-1954.

The ten emeriti professors range from Alice Hamilton, M.D., who retired as assistant professor of industrial medicine in 1935, to three who became emeriti in 1958, Drs. John Everett Gordon, Harold Coe Stuart, and Franz Goldmann.

Of the 11 honored at this first ceremony, which "happy custom" Harvard President Nathan Marsh Pusey hopes will endure, seven are members or Fellows of the American Public Health Association.

Uniform Industry Dairy Score Sheet

An "Industry Farm Sanitation Report Form" was discussed by Robert W. Metzger, D.V.M., at the Dairy Products Improvement Institute held February 19 in New York City. The form was developed under the sponsorship of the New York State Milk Sanitarians Association and approved for use by industrial inspectors in New York, Connecticut, and New York City. It was first used critically by more than 450 industry field men and by the respective health departments in Connecticut, Delaware, Maryland, Massachusetts, New Hampshire, New Jersey, New York, and Vermont. Its purpose is to provide a means of collecting information required by the public health jurisdictions in the states. Copies may be obtained from A. C. Dahlberg, Ph.D., secretary, Dairy Products Improvement Institute, 302 East State St., Ithaca, N. Y.

Other papers at the institute discussed the recently enacted food additives amendment legislation, quality of milk to be used in manufacturing, and uniform labeling of milk and selected milk products.

A New Industrial Medical Journal

In January, 1959, the Industrial Medical Association began the "Journal of Occupational Medicine" as its monthly official publication. It is designed "to meet the need for a publication of the highest caliber in the field of industrial medicine and surgery." The promise is that it "will be as modern as today, with the judgment and dignity that come with maturity." Monthly features are original articles, topical reviews, abstracts, editorials, case reports, book reviews, and news and notes of people and events.

In the first issue original articles included a discussion by Robert A. Kehoe, M.D., director, Kettering Laboratory of Applied Science, University of Cincinnati College of Medicine, on "The Urgent Need for Qualified Physicians in Occupational Medicine." Another was on the "Present Position of Government in Occupational Health" by Seward E. Miller, M.D., medical director of the University of Michigan Institute of Industrial Health. O. A. Sander, M.D., medical consultant, reviews the newer concepts with respect to the pathogenesis of the pneumoconioses.

Editor is Adolph G. Kammer, head of the Department of Occupational Medicine at the University of Pittsburgh Graduate School of Public Health. The journal is a service to the members of the Industrial Medical Association, 28 E. Jackson Blvd., Chicago 4, Ill.; $10 to nonmembers, but charter subscriptions for a limited time at $7.50 annually, $20 for three years.

Adieu and Welcome

"Industrial Hygiene Review," Vol. 1, No. 1, published in December, 1958, by the Division of Industrial Hygiene, New York State Department of Labor, has been designated the "Inaugural Issue." With this issue the reader is reminded that "the Division of Industrial Hygiene has discontinued publication of the 'Monthly Review,' the last issue of which appeared in December, 1957, as Vol. 12, No. 36. Henceforth, the division will publish the 'Industrial Hygiene Review' several times each year. Consecutive volumes will begin with the first issue of each calendar year." This first issue is given over to a discussion of administrative experience with the New York State Industrial Code Rule No. 38, Radiation Protection. Morris Kleinfeld, M.D., is director of the Division of Industrial Hygiene. Robert Ratajack is editor of the Review.

PHS the Radiation Health Agency

A 12-man advisory committee appointed more than a year ago by Surgeon General Leroy E. Burney in its recent report recommended that responsibility for protecting the health of the people from radiation be turned over to the Public Health Service. In presenting the report to Dr. Burney, its chairman, Russell H. Morgan, M.D., professor of radiology, Johns Hopkins University, suggested that an independent agency could push a "unified attack," including an expanded research program, with the results that "chances are good of finding out what the risks of radiation really are." The report further recommended that training of radiation health specialists, radiological technicians, and other personnel be accelerated through federal assistance. By 1970 an estimated 1,200 specialists and 4,000 technicians will be required according to the report.

At the recent annual spring meeting the Board of Directors of the Physicians Forum similarly urged that the PHS be the responsible agency in this field. In commenting on this problem, Chairman-Elect Allen Butler, M.D., said, "It is unwise to rely on the agency developing and testing nuclear weapons (AEC) to be prudently conservative regarding the danger to health resulting from its own principal activities."

At this same meeting the Board of the Physicians Forum "enthusiastically" endorsed the Forand Bill. This bill, H.R. 4700, provides hospital, nursing home, and surgical care for beneficiaries of the Social Security system. In addressing the board, Social Security Commissioner Charles I. Schottland expressed his opinion that the Forand Bill or comparable legislation would soon be enacted.

The Physicians Forum has a membership of more than 1,000. Its 1959 chairman is Katherine Dodd, M.D., professor of pediatrics, University of Louisville.

Nuclear Energy and Public Health

A special unit to study the long-range impact of nuclear energy on matters of public health has been established in the University of Chicago. The Section on Nuclear Medicine in the School of Medicine will deal with the full range of atomic public health problems from atmosphere to zoology, according to Lowell T. Coggeshall, dean of the Division of Biological Sciences, who made the announcement. Thirteen different

organizations that are a part of or associated with the university will have interest in the program, among them the Enrico Fermi Institute for Nuclear Studies, the Argonne Cancer Research Hospital, the Argonne National Laboratory, and the Schools of Law and Business, and others.

Among the problems to be explored are the increase in radiation due to by-products of current uses of nuclear energy devices, genetic and physiological consequences of increased exposure, legislative controls, medico-legal aspects of personal injury and compensation problems of persons engaged in the industry, and psychological reactions of society to the threatening aspects of nuclear energy.

The program is made possible by a grant of $500,000 from the Rockefeller Foundation. Additional funds will be sought from other sources.

Full Potential for a Creative Life

The theme of the 1960 "Golden Anniversary" White House Conference on Children and Youth is "Opportunities for children and youth to realize their full potential for creative life in freedom and dignity." The purpose of the conference is to promote these opportunities.

A Council on National Organizations on Children and Youth is serving as an advisory committee. Edward Press, M.D., director of field services, is the representative of the American Public Health Association on this group. Moreover, the Committee on Child Health and other units of the Association will collect certain data as background information for the conference.

A National Committee for the Conference is chaired by Mrs. Rollin Brown, immediate past-president of the National Congress of Parents and Teachers. On this committee are a number of members of the American Public Health Association, including President Leona Baumgartner, M.D., health commissioner of New York City, and Martha M. Eliot, M.D., chairman of the Technical Development Board, and chief, Maternal and Child Health, Harvard School of Public Health. Others are: Philip S. Barba, M.D., associate professor, Preventive Medicine and Pediatrics, University of Pennsylvania Medical School; Philip E. Blackerby, Jr., D.D.S., chairman, Committee on Professional Education, and associate director, W. K. Kellogg Foundation; and Ruth Freeman, D.Ed., associate professor, Public Health Administration, Johns Hopkins School of Hygiene and Public Health.

New Health Department in Colorado

Jefferson County in Colorado, which has heretofore been part of a tri-county health district, is now "on its own." At the beginning of 1959, John Glisman, M.D., M.P.H., became the health officer of this county of some 60,000 population.

Two Voluntary Health Groups Merge

The 12-year-old American Society for the Study of Arteriosclerosis has merged with the American Heart Association to become the latter's Council on Arteriosclerosis. This eighth council of AHA thus joins other councils covering the areas of community service and education, clinical cardiology, cardiovascular surgery, circulation, high blood pressure, rheumatic fever and congenital heart disease, and basic science. The invitation to merge was made by AHA in line with its objective to unify within its framework all major fields of heart and circulatory disease. A majority of the Arteriosclerosis Society's board voted for the amalgamation, the ground for which was laid by cooperation over a number of years in programs of mutual interest.

Chairman of the new Council on Arteriosclerosis is J. C. Paterson, M.D., of London, Ontario.

Training Opportunities

Industrial Water Conservation

A two-day course in industrial water conservation to meet the need of industries to explore "what is being done and what can be done by industry to cut down on its use of water," is announced by the University of Michigan School of Public Health. To be held June 8, 9, 1959, the course is designed specifically for plant engineers and upper management, but others both in industry and official agencies are invited to participate.

The $10 fee includes proceedings. Rooms and meals are available at the Michigan Union. Applications for admission to H. E. Miller, Director, Continued Education, University of Michigan School of Public Health, Ann Arbor.

Syracuse Summer Courses

Syracuse University announces three special summer programs believed to have special interest for public health workers. The shortest of these is a three-week workshop, June 29-July 17, on family relations designed particularly for teachers and public health and school nurses.

A six-week course, June 29-August 7, on health education, physical education, and recreation, is designed for workers with the physically handicapped, dental hygiene teachers, health teachers as well as gymnastic teachers and athletic coaches.

A ten-week program, June 1-August 7, is planned for professional nurses. Among the courses offered are rehabilitation nursing, nursing trends, public health nursing supervision, and five special public health nursing courses in field practice, administration, and methods. The separate courses vary in length from two to eight weeks.

Fees are $30 to $32 per credit hour for both degree and special students. Room and board averages about $30 per week in university dormitories. Detailed information and application for admission and housing should be sent to the Secretary of Admissions and Housing, Division of Summer Sessions, 805 S. Crouse Ave., Syracuse 10, N. Y.

Minnesota's Air Pollution Workshop

Problems of community air pollution from the educational, governmental, or industrial viewpoint is the subject of a two-week workshop to be given at the University of Minnesota School of Public Health. Such topics as responsibility, epidemiology, sampling and analysis technics, engineering control, and effects on man, animals, and plants will be discussed in the workshop.

Professor Harold J. Paulus of the school will direct the program with the assistance of four other staff members including Gaylord W. Anderson, M.D., director, and Professor Herbert M. Bosch (public health engineering). Also on the staff will be five Public Health Service engineers from the Taft Engineering Center, the Washington office, and the Kansas City regional office.

Participants are limited to 25; applications must be made by June 15. The course begins on July 6. Tuition is $52.50 and housing is available in the university dormitory. Three university credits are possible for those with proper academic qualifications.

Application should be made to the School of Public Health, 1325 Mayo Memorial Building, University of Minnesota, Minneapolis 14. Housing information from Director of Student Housing, 204 Eddy Hall.

North Carolina Engineering Course

A four-week short course in the principles and practice of sanitation is being offered by the University of North Caro-

lina School of Public Health. Included will be application of basic sciences to practice in the design, operation and control of small water supplies, sewage disposal installations and swimming and other recreational facilities; procedures for the control of insects and rodents, refuse handling, food and milk, air and radiation hazards, and related activities in the control of the environment in ten class and ten laboratory hours a week, June 8-July 3, 1959.

Those meeting the entrance requirements of the Department of Sanitary Engineering may earn four hours of extension credit; others a certificate of attendance. Tuition for state residents is $41; for nonresidents, $61; other expenses including books, about $50.

Applications or further information from Professor Gilbert L. Kelso, Department of Sanitary Engineering, School of Public Health, University of North Carolina, Chapel Hill.

Taft Sanitary Engineering Program

"Recent Developments in Water Bacteriology" will be presented at Taft Sanitary Engineering Center in Cincinnati, August 17-21. This course is designed for professional bacteriologists and others in positions of responsibility in state, municipal, and other laboratories doing water analysis, with special emphasis on laboratory aspects. Industry and university staffs are welcome.

There is no tuition or registration fee. Application should be made either to the Regional Director of the nearest Public Health Regional Office or to the Chief, Training Program, Robert A. Taft Sanitary Engineering Program, 4676 Columbia Parkway, Cincinnati 26.

PERSONALS

CARLETON ANTON, M.D., former practicing physician, has been named director, Division of Maternal and Child Health and Crippled Children, Wyoming State Health Department, succeeding the late ALBERT R. TAYLOR, M.D.

ARTHUR B. AWENIUS has been appointed to the newly created position of hospital construction consultant, Colorado State Health Department.

PAUL C. BEAVER, M.D.,† former professor of parasitology, has been appointed William Vincent Professor of Tropical Diseases and Hygiene, Tulane Medical School, New Orleans, La. He succeeds ERNEST CARROLL FAUST, M.D., who has reached retirement age but continues as field coordinator of the Tulane consultant program with the seven medical schools of Colombia, South America.

JOSEPH G. BENTON, M.D.,† professor and chairman, formerly in the Department of Physical Medicine and Rehabilitation, New York University-Bellevue Medical Center, is now in the new Department of Rehabilitation Medicine, State University of New York, Downstate Medical Center, Brooklyn, N. Y.

E. E. BERG, M.D., M.P.H.† former health officer of Coos County, has resigned to become health officer of the Sherman-Wasco Counties (Ore.) Health District which has been without a health officer for several years. Headquarters are in The Dalles.

E. CARR BIVINS, former director of education and information, is now WHO's adviser to the Government of Afghanistan in Kabul.

EDWARD A. BOETTNER, former research physicist, Engineering Research Institute in the university, has been appointed assistant professor of industrial health, Department of Industrial Health, School of Public Health, University of Michigan.

CLARA RICE BRIGHTMAN, R.N., is consultant for the Future Nurses Clubs of the Committee on Careers, National League for Nursing, to work with teenagers, with educators, advisers, and sponsors of the Future Nurses Clubs.

IMOGENE D. CAHILL, R.N., former associate professor in maternity nursing, Vanderbilt University School of Nursing, is now assistant director, regional curriculum conference project, National League for Nursing.

STUART H. CATTELL, a former teaching fellow in social anthropology, Harvard University, has been named program assistant, assigned to the Bronx office, New York Tuberculosis and Health Association.

GLENWOOD L. CREECH, Ph.D., former associate professor, National Agricultural Extension Center for Advanced Study, University of Wisconsin, has succeeded THOMAS N. MOSS, Ph.D., as director, Division of Agriculture, W. K. Kellogg Foundation.

* Fellow.
† Member.

WILLIAM A. FELLNER, M.D., former medical director, Fisher Body Division, has succeeded WILLIAM J. FULTON, M.D., retired, as medical director, General Motors Central Office, Detroit, Mich.

MELVIN A. GLASSER,† former deputy executive vice-president, has been been named executive vice-president, The National Foundation, New York City, succeeding the late RAYMOND H. BARROWS.

BONNIE ANNE GOBBLE, formerly at the University of Colorado Medical Center, has succeeded GEORGE NEILSEN as chemist, Colorado State Department of Health.

EPHRAIM ROOS GOMBERG, attorney and member of the Board of Directors, Pennsylvania Citizens Association for Health and Welfare, and former educator and newspaperman, has been appointed director, 1960 White House Conference on Children and Youth.

LEE A. GROSSMAN, M.P.H., has succeeded JACK TORREY as industrial hygienist, Colorado State Department of Health.

NANCY C. HOFFA, R.N., formerly on the staff of the Visiting Nurse Service of New York, is now a field worker, Division of Services to Patients, New York Tuberculosis and Health Association.

MARGUERITE HOLMES, R.N., former instructor in psychiatric nursing, is staff associate in the seminar project for teachers of psychiatric aides, Mental Health and Psychiatric Nursing Advisory Service, National League for Nursing.

WILLIAM P. HURDER, M.D., M.P.H., former head, State Colony and Training School, Pineville, La., is now director, program in mental health training and research, Southern Regional Education Board, Atlanta, Ga.

JANE KEELER, R.N., former administrative assistant, Visiting Nurse Association of Brooklyn, is now an assistant director, Department of Public Health Nursing, National League for Nursing.

EDWARD F. LIS, M.D., director, Center for Handicapped Children, University of Illinois Hospital, has been appointed acting director of the university's statewide Division of Services for Crippled Children, succeeding the late HERBERT R. KOBES, M.D.

MARY F. LISTON, R.N., former instructor in psychiatric nursing at Seton Institute, Baltimore, assistant professor at Catholic University, and instructor in nursing education at Teachers College and in psychiatric nursing at VA Hospital, Montrose, N. Y., is now assistant director, Mental Health and Psychiatric Nursing Advisory Service, National League for Nursing.

HAROLD MITCHELL, M.D.,* administrator of school health services, Montgomery County, Md., has retired.

MARGARET C. MOORE,* consultant in nutrition, Louisiana State Board of Health, has been named 1958 Woman of the Year for Louisiana by the "Progressive Farmer" magazine.

E. A. PEARSON, JR., D.D.S., M.P.H., in private practice and earlier, public health dentist, Wake County Health Department, has succeeded the late ERNEST A. BRANCH, D.D.S.,* as director, Division of Oral Hygiene, North Carolina State Board of Health.

JAMES E. RAYMOND,† former regional representative, National Association for Mental Health, is now a consultant, American Heart Association.

JOSEPH F. RUDMIN, M.D.,† former health commissioner, Cortland County, is now health commissioner, Clinton County, N. Y.

HOWARD A. RUSK, M.D.,† director, Institute of Physical Medicine and Rehabilitation, New York City, received the 1958 Physician's Annual Award of the President's Committee on Employment of the Physically Handicapped on February 16, 1959, at the annual meeting of the Congress of Industrial Health.

MATHILDA SCHEUER, R.N.,* newly elected president, American Nurses' Association, has been appointed to the Expert Advisory Committee for the Professional Nurse Traineeship Program, Public Health Service.

MILDRED S. SCHMIDT, R.N., former director, Monmouth (N. J.) Memorial Hospital School of Nursing, now holds the newly created position of consultant in junior college nursing curriculums, National League for Nursing.

ORVILLE STODDARD is a new associate public health engineer, Colorado State Health Department.

BYRDICE TAMS, R.N.,† former supervisor, Newark (N. J.) Visiting Nurse Association, is now an assistant director, Department of Public Health Nursing, National League for Nursing.

EDWARD L. TURNER, M.D., former secretary, Council on Medical Education and Hospitals, has been named director, Division of Scientific Activities, American Medical Association. He has been succeeded by WALTER S. WIGGINS, M.D., as secretary of the council.

THOMAS B. TURNER, M.D.,* dean, Johns Hopkins University School of Medicine, heads the new Committee on Professional Education, of the National Foundation.

VIRGINIA V. VAHEY,† former medical-social consultant, Massachusetts Department of Welfare, has been appointed temporary project officer by the New Jersey Commis-

* Fellow.
† Member.

sion to Study the Administration of Public Medical Care.

WILLARD H. WRIGHT, D.V.M., chief, Laboratory of Tropical Diseases, National Institutes of Health, retired, has been appointed to direct a survey of the fields of infectious and parasitic diseases, veterinary medicine, and environmental hygiene, and of disease problems in tropical and subtropical areas of significant importance to public health and to agricultural and industrial development. He has been named president-elect for 1959 of the Society of Tropical Medicine and Hygiene.

GEORGE K. WYMAN, former director, California State Department of Social Welfare, is now deputy commissioner of social security, Federal Social Security Administration.

SAMUEL ZIBIT,* former assistant director, Mt. Sinai Hospital of Greater Miami, has been appointed executive director, Jewish Orthodox Old Folks Home, St. Louis, Mo.

DEATHS

EDWARD B. BUKOWSKI, M.D.,† first deputy commissioner of health, Erie County Health Department, Buffalo, N. Y. (Health Officers Section).

ELIZABETH M. DACH,† editor, Human Relations Aids Program packet service of the Mental Health Materials Center, New York, N. Y., on February 25 (Mental Health Section).

VICTOR M. EHLERS, C.E.,* director, Bureau of Sanitary Engineering, State Department of Health, Austin, Tex., on March 20 (Engineering and Sanitation Section).

LINWOOD FARLEY, M.D.,† health officer, Williamsburg (Va.), on November 18, 1958 (Health Officers Section).

FREDERICK CARL HETTINGER, retired chairman of the Chemical Engineering Department, Johns Hopkins University, Baltimore, Md., on February 1.

ROBERT G. JOHNSTONE, Ph.D.,† associate professor of medical parasitology, University of California Medical School, San Francisco, Calif., on December 5, 1958 (Laboratory Section).

FRANCES A. KENYON, M.D.,† of Woodville, R. I., on February 15 (Health Officers Section).

PAUL C. LAUX,† superintendent, Division of Water, Columbus, Ohio (Engineering and Sanitation Section).

FRED J. LEWIS, C.E.,† associated with Vanderbilt University, Nashville, Tenn., on January 4 (Engineering and Sanitation Section).

DANIEL F. MCCARTHY* of Richland, Wash., suddenly on March 8 (Engineering and Sanitation Section).

DENIS MCGENTY,† director of professional education of the National Council on Alcoholism, New York, N. Y., suddenly, on February 28 at the age of 50 (Mental Health Section).

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RAYMOND VAN BUREN STONE, D.V.M.,* director of public health laboratories, Los Angeles (Calif.) County Health Department (Laboratory Section).

CONFERENCES AND DATES

American Public Health Association, Eighty-Seventh Annual Meeting, Atlantic City, N. J., October 19–23.

State and Regional Public Health Meetings—May, June, and July:

Colorado Public Health Association. Stanley Hotel, Estes Park. June 11–12.

Georgia Public Health Association. De-Soto Hotel, Savannah. May 11–13.

Idaho Public Health Association. Shore Lodge, McCall. May 8–9.

Indiana Public Health Association. State Board of Health. Indianapolis. May 7–8.

Michigan Public Health Association. Pantlind Hotel, Grand Rapids. May 13.

Missouri Public Health Association. Hotel Statler, St. Louis. May 18–20.

* Fellow.
† Member.

Montana Public Health Association. Veterinary Assembly Hall, Montana State College, Bozeman. May 7–8.

New England Health Institute. Providence College, Providence, R. I. June 17–18.

New York State Public Health Association. Lake Placid. May 25–28.

Ohio Public Health Association. Neil House, Columbus. May 19–20.

South Carolina Public Health Association. Francis Marion Hotel, Charleston. May 7–9.

Southern Branch, APHA. McAllister Hotel, Miami, Fla. May 27–29.

Utah Public Health Association. University of Utah, Salt Lake City. May 15.

Virginia Public Health Association. Hotel Roanoke, Roanoke. May 18.

West Virginia Public Health Association. Daniel Boone Hotel, Charleston. June 11–13.

Western Branch, APHA. Sheraton-Palace Hotel, San Francisco. June 1–5.

Wisconsin Public Health Association. American Baptist Assembly, Green Lake. May 25–27.

Meetings of Other Organizations:

Air Pollution Control Association. Hotel Statler, Los Angeles, Calif. June 22–26.

American Diabetes Association. Chalfonte-Haddon Hall, Atlantic City, N. J. June 6–7.

American Hearing Society. Fountainbleau Hotel, Miami Beach, Fla. June 8–11.

American Home Economics Association. Milwaukee, Wis. June 23–26.

American Medical Association. Traymore Hotel, Atlantic City, N. J. June 8–12.

American National Red Cross. Convention Hall, Atlantic City, N. J. June 1–3.

American Physical Therapy Association. Hotel Leamington, Minneapolis, Minn. June 21–26.

American Social Hygiene Association. New York, N. Y. May 11.

American Society of Medical Technologists. Hotel Westward Ho, Phoenix, Ariz., June 14–19.

American Society of Planning Officials. Leamington Hotel, Minneapolis, Minn. May 10–14.

American Water Works Association. San Francisco, Calif. July 12–17.

Canadian Public Health Association with the Society of Hygiene and Preventive Medicine of the Province of Quebec (50th Anniversary Meeting). Sheraton-Mount Royal Hotel, Montreal, Que. May 31–June 3.

Goodwill Industries of America. Detroit, Mich. June 25–28.

Group Health Institute. Joint Conference of Group Health Federation of America and American Labor Health Association. Biltmore Hotel, New York, N. Y. May 25–28.

Health Physics Society. Gatlinburg, Tenn. June 18–20.

Inter-American Conference on Rehabilitation (Fourth). San Juan, Puerto Rico. May 20–23.

International Medical Conference on Mental Retardation (First). Eastland Hotel, Portland, Me. July 27–31.

National Association of Sanitarians. Deauville Hotel, Miami Beach, Fla. June 22–26.

National Association of Social Workers (in conjunction with National Conference on Social Welfare). San Francisco, Calif. May 24–29.

National Citizens Committee for the World Health Organization — Second National Conference on World Health. Statler-Hilton, Washington, D. C. May 7–9.

National Conference on Social Welfare. San Francisco, Calif. May 24–29.

National League for Nursing. Convention Hall, Philadelphia, Pa. May 11–15.

National Society for Crippled Children and Adults. Pick Congress Hotel, Chicago, Ill. May 25–28.

National Tuberculosis Association. Palmer House, Chicago, Ill. May 25–28.

United States Conference of Mayors. The Statler Hilton. Los Angeles, Calif. July 13–15.

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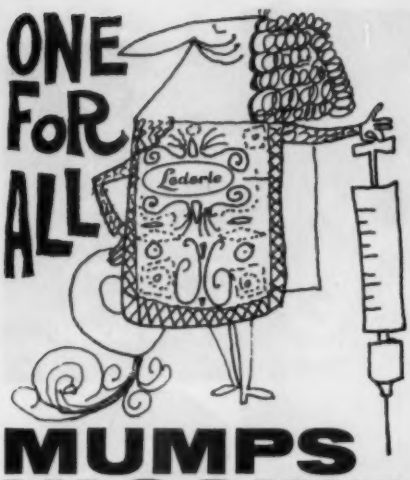

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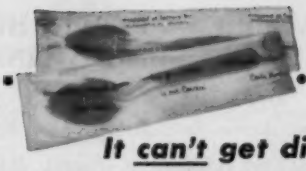

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Control:

Control depends upon isolation sepsis and the continuing supression of the environmental multipliers.**

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* Edward S. Sulkin, Ph.D., F.A.P.H.A.
** Carl M. Walter, M.D., "The Pharmacy", *Hospital Topics*, Vol. 36, No. 12 (December, 1958), p. 89

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